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THE MODEL OFFICE PROJECT: FINAL REPORT

Submitted to:

Mines and Mineral Division

Ministry of Northern Development and Mines

Submitted by:

Prior & Prior Associates Ltd.

May 12, 1996


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MINES AND MINERALS DIVISION

Public Report

Model Office Study

By
Prior & Prior

1996

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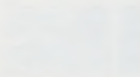
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1.

EXECUTIVE SUMMARY

Purpose of project

The original purpose of the Model Office Project was to streamline the field service operations of the Mines and Minerals Division to increase customer satisfaction and to attract investment to Ontario. The division was also asked to make very substantial reductions in program delivery and operating costs.

The division intends to ensure that the changes and reductions recommended by this project balance the required budget reductions with:

- the needs of the mining community
- the impact on Ontario communities and economy at large
- the return on the Province's investment in mining.

The Model Office Project has developed an operating model for streamlined, cost effective field service operations which are responsive to the current and anticipated needs of clients and competitive with those provided in other jurisdictions.

Project background and overview

Project team

The project was sponsored by the Assistant Deputy Minister, Mines and Minerals Division of the Ministry of Northern Development and Mines. It was supported by the entire management team of the division. Prior & Prior Associates Ltd., in conjunction with Roscoe Postle Associates Inc., was awarded the Model Office Project through a competitive RFP process initiated in the Globe and Mail. Both companies are familiar with the field operations and information technology of the division.

Project scope

The consultants were directed to focus on the field services delivery organization for the following field programs:

- resident geologist program
- mining recorder program
- mineral development program.

Project methodology

The project methodology proposed for the Model Office Project recommended a business re-engineering framework to address the wide range of issues facing the project team. The consultants analyzed field operations “as is” and then identified and applied design criteria to create a model of field operations “to be”. Chapters 3 and 4 of this report describe the “as is” organization. Chapters 5 and 6 describe the field organization “to be”.

To redesign field operations, the consultants conducted extensive consultations with the customers and staff of the division as well as with other mineral exploration and mining jurisdictions in Canada. Client consultations included four focus group sessions (Sudbury, Toronto, Timmins and Thunder Bay) as well as a survey questionnaire completed by 338 respondents. Details of the benchmark interviews with other jurisdictions, the focus sessions and the questionnaire have been compiled in a separate report, entitled *Model Office Project: The Public Consultation Process*.

The consultants would particularly like to thank the field staff of the division. *Staff were very supportive even though there were no guarantees as to their job security in the redesigned field operation.*

Rationale for designing the model office

The consultants used the following steps to redesign the field operations of the division:

1. identify the jurisdiction, core business and core customers of the division
2. identify the core field services of the division
3. identify the field service zones required by the division’s customers
4. identify the core competencies required of staff to deliver the core field services

5. identify the levels of service required by customers
6. develop a profile of the types of field offices to operate in the future
7. develop a location model to determine where field offices are required.

*Observe key constraints in
redesigning field operations*

Throughout the design process, the consultants applied several constraints to temper the model. These constraints included:

- the need to sustain the economic health and value of the industry
- the need the sustain Ontario's competitive position in the global mining industry
- the division's cost reduction targets
- the limitations on available capital and facility budgets.
- the need to sustain the economic health of local communities.

General findings

The division's customers expressed a high degree of satisfaction with its field services.

While they generally supported the need for government fiscal restraint, they pointed out that the division has already experienced major budget cuts in the past few years. They were critical of earlier budget reductions which eliminated funding programs, the Mine Site Reclamation Section, and claims inspectors. *The industry feels strongly and vocally that their revenue producing capabilities far outweigh the cost of government in supporting them.*

Resident geologist program

There are 13 Resident Geologists, 1 Geoscientist and approximately 30 staff operating 5 types of field offices in 18 facilities under the Resident Geologist Program. Clients emphasized the valuable consultative role of Resident and Staff Geologists who have extensive knowledge of local geology.

They stressed the primary importance of the libraries and files of geological information maintained in district offices as a critical resource to guide their exploration efforts. Assessment files for the entire province have been scanned in electronic image format. These images represent a key information layer in the Earth Resources Library Information System (ERLIS). ERLIS workstations are available in four offices: Sudbury, Toronto, Timmins and Thunder Bay. Despite the investment in ERLIS, clients emphasized *the absolute importance of the current paper assessment files* to their exploration work, since:

- the ERLIS data is currently incomplete
- the ERLIS user interface used to pan and zoom over scanned maps is not nearly as efficient or intuitive as working with paper maps to compile a picture of an exploration property.

A more detailed analysis of ERLIS is provided in Chapter 7 of this report.

Mining Recorder Program

There are 7 Mining Recorders and approximately 40 staff operating mining division and mining lands offices in 9 facilities under the Mining Recorder Program. Field office staff provide advice and consultation regarding the Mining Act, its regulations and the division's policies regarding claims staking and assessment work. At the front counter, they instruct and assist clients concerning claim staking, claim filing and assessment work.

Clients expressed considerable satisfaction with the current operation of the program. The recording of mining claims and filing of assessment work reports is considered the most important service. Knowledgeable mining recorder staff provide valuable support to customers to ensure that they comply with Mining Act provisions in filing claims and reports. Clients make considerable use of the existing claims database although they would prefer that local terminals would provide information on claims across the province (local terminals only provide claims data for the division in which they are located).

Mineral development program

The end of a number of incentive programs has called into question the role and workload of the field operations of the Mineral Development Program. The strongest support for the retention of this function came from a few small and mid-sized mining production and mine development clients that find the regulatory regime and bureaucracy very expensive and slow to manage. The overwhelming majority of clients attending the client focus group meetings and responding to the surveys expressed that they experience little value in this function because they do not use it or because the division and the Mineral Development Coordinators do not have the jurisdictional authority to go beyond a form of “moral suasion” in influencing the regulators in other Ministries and agencies and Aboriginal Bands to approve permits.

Recommendations

The following are the major recommendations of the Model Office Project.

General recommendations

Focus on core business of the division

The core business of the division is to regulate and serve Ontario's mineral exploration and mining industry at several stages along the mining sequence. The consultants recommend that the division's field organization be confined to this jurisdiction, focusing primarily on:

- the early and advanced stages of mineral exploration
- the early stages of mine development
- regulatory control of the mine rehabilitation and closure.

Focus on mineral exploration and mining industry

The division should also focus on its primary customer group, ie, the mineral exploration and mining industry. It should withdraw from providing services to other customer groups.

Limit criteria for field operations

For a core service of the division to be defined as a core service of field operations, it must meet the following criteria:

- Convenience of customer access
- Necessity of frequent face to face interchange
- Frequent need to visit customer sites
- Need to know local conditions.

Centralize regulatory approval functions and decentralize service

Service and regulatory functions are generally incompatible. The division has separated its regulatory and service roles by locating its regulatory role primarily in the Mining and Land Management Branch and its service role primarily in the OGS. The division should separate regulatory approval processes from intake processes. As a general rule, approval processes should be centralized to ensure that uniform standards apply across the province.

Types of field offices

Based on the results of the focus groups, interviews with staff and the consultations with other jurisdictions, and the design principles just developed, the consultants recommend four types of field offices:

1. *Regional offices* will administer all field services and offices in their regional service zone.
2. *District offices* will deliver services which require an annual presence in a district service zone.
3. *Seasonal satellite offices* enable the division to respond to variations in workload due to seasonal and geographic differences.

4. The division should give serious consideration to opening a number of *front counter operations* in communities throughout the province to provide access to mining recorder services in particular. It should contract with public or private sector agencies to establish these operations.

Resident geologist program

In general, the existing program is working very well. The information technologies which could reshape the program are not sufficiently mature to warrant major efforts in program redesign. The consultants recommend some sharpening of the focus of the program and some trimming of costs:

1. Establish regional offices in Sudbury, Toronto, Timmins, Kenora and Thunder Bay.
2. Maintain district offices in Kirkland Lake, Sault Ste Marie, Red Lake and Sioux Lookout.
3. Assign geoscientific staff to regional and district offices based on activity levels.
4. Convert Cobalt, Tweed and London to satellite offices.
5. Retain Schrieber-Hemlo and Beardmore-Geraldton as satellite offices.
6. Maintain the current arrangements for drill core libraries.
7. Maintain access to the paper assessment files in the regional and district offices.
8. Cut public education and prospectors classes, handling of lab assay samples, and land use planning support for municipalities.

Mining recorder program

Current and planned information technology initiatives provide considerable scope for redesigning the mining recorder program. The consultants have several recommendations which could lead to substantially lower costs while improving accessibility and service. The nine existing mining division/lands offices could be replaced by a network of front counter operations in government offices or private sector agencies throughout the province (where volumes warrant). The consultants recommend that the division:

1. Centralize the mining recorder function in Sudbury.
2. Establish front counter intake operations in regional, district and local offices progressively.
3. Pursue the use of the Internet for viewing claim maps and abstracts.
4. Initiate a re-engineering project for the mining recorder program immediately

Mineral development program

Given the elimination of a number of incentive programs, the viability of the mineral development program as a field operation is open to question. The consultants have two recommendations:

1. Abandon the one window permitting program.
2. Retain regional operations only if workloads warrant it.

ERLIS and electronic service delivery

Three or four years ago, a PC based ERLIS system would have been a logical path to broaden access to electronic exploration information. The popularization of the Internet now makes it the most logical choice for information delivery. The consultants recommend that the Ministry build an Internet information delivery system for the ERLIS data warehouse, and withdraw the existing ERLIS workstations in the four sites that they are currently located. The division should also:

1. Lay to rest any fears that ERLIS will replace paper by maintaining access to the paper assessment files.
2. Re-establish the credibility of the data integrity of ERLIS by implementing an effective data maintenance process.
3. Begin a project for electronic filing of assessment work reports.
4. Mount a major, multi-phase project to create Internet access to ERLIS data, including claims maps and abstracts
5. Develop or acquire the skills within the Data Services Section to maintain the ERLIS data warehouse.

Map staking

The issue of replacing the current practice of ground staking with map staking was raised in interviews with Mining Recorder program staff and other jurisdictions, as well as in client focus groups. The issue is extremely controversial. *Independent prospectors are vehemently opposed to map staking*, viewing it as a threat to their livelihood and their competitive advantage in mineral exploration. Major mining companies and government staff see map staking as a means of cutting exploration and administration costs and reducing disputes over mining claims. The consultants recommend that the division pursue a detailed investigation of map staking and its implications as a part of the mining recorder re-engineering project.

Implementation schedule and estimates

The results of this project should be implemented as soon as possible, not only to achieve the necessary expenditure reductions, but to reduce the uncertainty and stress associated with the changes.

Schedule

The implementation timeline outlined in chapter 8 assumes that all organizational changes can be implemented for fiscal 1997. Implementing technological changes will take two to three years. A very aggressive project management approach will be needed to achieve these targets. Outside resources will be required primarily to implement technological changes.

The mining recorder function should be centralized by April 1997. This can only be accomplished by phasing the implementation of the redesigned program. The division should conduct an immediate business process re-engineering project to rethink and redesign the mining recorder function. Pending the outcome of the re-engineering project, the intake operations of the mining lands offices could be merged into the resident geologists offices. In subsequent years, the division should provide Internet access to either image based or digital mining claim maps using a GIS based browser for the final implementation. This approach is consistent with those underway for BC and Manitoba. Quebec intends further automation of this function, but has not yet put forward a design document.

Front counter and library operations

The division has the opportunity to develop a unified front counter and technical library operation which delivers services for both the Resident Geologist and Mining Recorder Programs. Each regional and district office would operate a front counter service. In addition, the division could licence front counter operations in towns and cities which do not have permanent divisional field offices but do have exploration activity. These operations could be placed in other government offices or in private sector offices.

Cost estimates

While the Model Office Project was not charged with developing cost and benefit scenarios for the implementation of the recommendations, the consultants have itemized costs where outcomes are well understood. Chapter 7 on ERLIS provides a range of costs from \$700,000 to \$900,000 over a 3 year period. External costs for the implementation of the proposed changes, excluding ERLIS, would be approximately \$200,000. Total external costs over a period of 3 years would therefore be \$900,000 to \$1,100,000. Internal costs would be in the order of 8 to 10 person years excluding specific estimates for implementing front counter operations in MNM or other offices.

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THE MODEL OFFICE PROJECT

Purpose of project

Original purpose of project

The original purpose of the Model Office Project was to streamline the division's field service operations to increase customer satisfaction and to attract investment to Ontario. To this end, the model office project team was asked to:

1. review service delivery methods in field and head offices
2. assess these methods with respect to current and future needs of the division's clients
3. evaluate the current use of electronic media in service delivery
4. identify opportunities to improve service delivery through changes to the range and type of services offered, service delivery processes and methods, and ministry regulations
5. review head office operations required to support the delivery of programs through field offices.

The Model Office Project has developed an operating model for streamlined, cost effective field service operations which are responsive to the current and anticipated needs of clients and competitive with those provided in other jurisdictions.

Impact of deficit reduction agenda

As the project was beginning, an additional, over-riding purpose was added to the project. In response to the government's agenda to eliminate the provincial deficit and to reduce debt loads, the Mines and Minerals Division has been asked to make very substantial reductions in program delivery and operating costs. In defining a model field operation, the consultants have been asked to work within the larger mandate of substantial budget cuts while defining field operations which are consistent with the original mandate of the project.

The Division's aim is to ensure that the changes and reductions recommended by this project are based on a rational approach that balances the mandated budget reductions with the requirements of the mining community, the impacts on Ontario communities and economy at large, and the return on the Province's investment in mining.

The Model Office Project is examining the division's field operations and infrastructure to uncover opportunities to take advantage of:

- new technologies
- recent lessons-learned in several jurisdictions regarding alternative service delivery in government
- modern business management and organization design principles.

Situation and background

The model office project was initiated amidst considerable controversy regarding the future disposition of the Mines and Minerals Division field office service delivery infrastructure. The agenda of the current government in Ontario was already being translated into possible options for implementation at the time this project was being initiated (December 7, 1995). The Ministry, and subsequently the consultants, have received numerous letters, telephone calls and faxes from a wide range of stakeholders for whom the outcomes of this project may have significant daily impact. Despite the consultants being given an open agenda in which to address the field service organization, there was considerable cynicism from all sectors of the industry about the role of the Model Office Project.

The initiation of this study and the current downsizing activities of the Ontario government coincided with an increasing level of activity in the mining industry in Ontario. Since the late 80's, there had been a downturn in the exploration industry in Ontario as many companies pursued opportunities in other parts of Canada and abroad. The last administration in Ontario raised significant concerns about the cost of doing business in Ontario, not the least being the high costs of energy for mine development and production. Controversy about the acceptance of ERLIS in the resident geologists' offices provided the technology focus of the project. Premature responses to map staking by the mining public occurred before the Ministry could put forward a position.

Initial reductions in the Mines and Minerals Division budget to eliminate funding programs, the Mine Site Reclamation Section, and claims inspectors was met with considerable criticism by the industry. *The industry feels strongly and vocally, that their revenue producing capabilities far outweigh the cost of government in supporting them.* Further, the three tiers of the mining industry (prospectors, junior mining companies and major mining producers) are often in conflict as the field services targeted by this study are most supportive of the lower tier(s), where the industry is most vulnerable.

This study is occurring at a time of increased exploration and mining activity in Canada. The newspapers are full of articles on recent major finds (eg, Voisey's Bay) as highlighted by the 1996 annual Prospectors & Developers Association meeting in Toronto.

The focus of the model office project was to identify the core business of the field office functions for Mines and Minerals Division, to suggest functions which might be eliminated or transferred to other organizations, and to assess the service delivery infrastructure (number, type and location of offices) for field services.

Overall challenges facing government today must be addressed by this and other similar initiatives:

- reductions in the size and scope of government
- the potential for outsourcing and privatization of non-core business or support functions
- a more articulate and educated public
- opportunities for automation coupled with rapidly changing technology
- competition for new industry.

While the Ministry and the Division had previously undertaken a range of surveys on the role of the Ontario Geological Survey, for example, none had focused as directly on the overall field services requirements of the mining industry as the Model Office Project.

The public nature of the government's expenditure reduction objectives cast a "hype" over all communications with staff, representatives from all sectors of the mining community and other interested parties.

Project team

Prior & Prior Associates Ltd., in conjunction with Roscoe Postle Associates Inc., was awarded the Model Office Project through a competitive RFP process initiated in the *Globe and Mail*. The project was sponsored by the Assistant Deputy Minister, Mines and Minerals Division of the Ministry of Northern Development and Mines, and supported by the entire management team of the division.

The multidisciplinary nature of the project demanded a project team with a wide range of skills. These included:

- a knowledge of the mining sector in Ontario and in other jurisdictions
- a knowledge of the Ontario government, and preferably the Ministry of Northern Development and Mines
- an understanding of current trends in information technology and geographic information systems from both a conventional and future perspective
- business re-engineering expertise in assessing the products, services and alternative service delivery mechanisms.

The Prior & Prior project team met all of the expertise and skill requirements.

Project methodology

The project methodology proposed for the Model Office Project recommended a business re-engineering framework to address the wide range of issues facing the project team. A business modeling approach was employed to:

- capture the information gleaned from stakeholder consultations
- provide a baseline view of current operations
- highlight where improvements can be made to products, services and service delivery processes
- support the implementation of alternative products, services and delivery methods
- provide input to future systems design and development efforts.

The key element of the business modeling was to create a view of the enterprise (field services) “as is”, followed by what it “could be”. Chapters 3 and 4 of this report describe the enterprise “as is”. Chapters 5 and 6 describe the enterprise as it “could be”. Various organizational enablers - business process re-engineering (products and services assessment), information technology and organizational design principles would be applied in deriving the future model organization.

The data collection phase addressed both the current situation, as well as insight into service level changes and alternative service delivery opportunities. Aspects of the methodology employed throughout the data collection phase included:

- focus sessions (for clients)
- structured interviews (for staff and with other jurisdictions)
- a survey questionnaire (to provide clients with an open opportunity to input to the process)
- a structured workshop with staff to establish an inventory of business functions and identifying core business.

Project scope

The consultants were directed to focus on the field services delivery organization for the following field programs:

- resident geologists program
- mining recorder program
- mineral development program (in the field)

Implications for head office management and administrative structures are commented upon, but are not explicitly included in the scope of the project.

Project approach and plan

The project plan initially called for five phases of activity - project initiation, situation analysis, product and service review, alternative service delivery processes and organization, and final report. Fully four of these phases were subsumed into a single data collection phase when the plan was revised to address a broader client consultation process after the project was initiated.

The large data collection phase (phase 1) encompassed the following sets of activity:

- the development, distribution and compilation of the survey questionnaire
- the structured interviews with staff at both head office and in the field (all offices were interviewed)
- the focus session in Sudbury, Thunder Bay, Timmins and Toronto
- the interviews with other jurisdictions.

Phase 2 addressed the analysis of alternative service delivery processes and organization based on the input collected, and the final report. Phase 2 focused on the development of a design methodology and outcomes of applying the methodology to the current structures. Service delivery volumes, customer requirements and the functional needs of the Division to serve the customers and handle the volumes have formed the chief inputs to define the criteria for designing the Model Office and putting forth alternatives. In so far as the primary objective of the study is to contribute Division's operating budget reduction targets of 20% to 60% over the next two fiscal periods, the consultants' recommendations present an opportunity to offset the negative impacts of the downsizing on the industry and communities of interest.

Consultations with stakeholders

As a function of the project methodology and approach, clients of the Mines and Minerals Division services, District and Divisional personnel, and the Headquarters staff (at Sudbury) were engaged in a series of working meetings and focus groups to examine the current and future business requirements of the industry, the products, services and functions of the field offices, and to identify possible alternative service delivery models along with their potential impacts. The consultations were supplemented by a review of relevant documentation provided by the Division, by "benchmark interviews" of similar government services in other Canadian jurisdictions (i.e. federal and provincial) and a voluntary participation survey of MMD clients and Associations representing the various segments of the mineral exploration and mining community. Details of the benchmark interviews, the focus sessions and the questionnaire have been compiled in a separate report, entitled *Model Office Project: The Public Consultation Process*.

Consultation with head office staff

Interviews were conducted with various head office functions to derive an understanding of the current products and services offered in the field, the current organization structure, and industry trends, concerns and issues. Many of the organizational alternatives were already being discussed within head office as the project was being initiated. Head office staff provided their current analyses of how various program areas could be modified, along with considerable documentation on past, current and future requirements. Documentation on budgets, organization structure and staffing were also included.

A workshop was held with headquarters staff early in the project to develop a model of the client base and the related products and services. This was very helpful in orienting the consultants to the overall business of the division.

Consultations with field staff

Consultations with field staff were scheduled to take place in four locations, and were followed by the client focus sessions for each location. Staff were interviewed in groups (resident geologist, mining recorder and mineral development officers where appropriate) in each of the following locations. Offices represented in each interview session are indicated in brackets.

- Toronto (Toronto mining recorder, London and Tweed resident geologists, Mines and Mineral Information Centre geoscientist)
- Sudbury (Sudbury, Sault Ste Marie and Cobalt resident geologists, Sudbury and Sault Ste Marie mining recorder, mineral development officers)
- Thunder Bay (Thunder Bay, Sioux Lookout, Red Lake, Kenora mining recorders, Thunder Bay, Beardmore-Geraldton, Schreiber-Hemlo resident geologists)

- Timmins (Timmins and Kirkland Lake mining recorders, Timmins and Kirkland Lake resident geologist).

All areas were well represented in the interviews. The mining recorder representatives were very apprehensive about possible centralization of this function. In all cases, they were extremely helpful in detailing the characteristics of the mining recorder function in their jurisdiction, and in providing documentation supporting the structured questionnaire (see appendix), in addition to other documentation volunteered from several offices.

Resident geologists, similarly, provided a wide range of information regarding their clients, how they spend their time, indications of client satisfaction, and supporting documentation. They were careful to inform the consultants of regional differences, to a large part due to the different geology of the province. Some expressed their concerns regarding the quality of services provided in their offices, particularly how staff geologists often provide most of the client services, while resident geologists are seen to be too involved in administrative matters (or in one case, not involved at all).

Mineral development officers were interviewed in Timmins, Kenora and Sudbury. Each area outlined the nature and focus of their role. As in the case of resident geologists and mining recorders, mineral development officers provided supplementary material to the interviews, identifying clients, special projects and services demanded by clients.

In discussions with clients in the focus sessions in each of the offices, and in various telephone conversations, there was very strong support for the local offices and very few criticisms. This verified that office staff actually saw themselves as they were seen by their clients: providing quality expertise and support to their clients in virtually all situations.

The consultants would like to thank the staff who took part in the group interview sessions, as well as several individual interviews at head office.

Focus Groups

Focus groups were held with clients in four locations in the province: Sudbury, Thunder Bay, Timmins and Toronto. Both of the Thunder Bay and Timmins sessions were relatively well attended given the winter weather conditions and the distances. Attendees at both these sessions were heavily representative of the prospector and junior mining companies. The Sudbury and Toronto sessions were less well attended, and were generally represented by members of the major mining companies and other interested parties.

The Thunder Bay and Timmins sessions were heavily attended by representatives of the prospectors associations, who were extremely vocal in expressing their concerns about the study itself, and the subjects of possible office closings, ERLIS and map staking. Perseverance on the part of the consultants provided the opportunity to explore some of the key issues - trends, issues and concerns, and the importance of field office services.

All four sessions provided unique perspectives on the role of local offices on the mining community in Ontario. Some issues were common:

- mining claim tenure integrity is critical to the industry
- the assessment report documentation (paper files) are essential to the local prospectors, and valued by the representatives from the junior and major mining companies
- ERLIS is considered the future direction for information services for the mining industry, but requires completeness, currency and improved ease of use
- the consultative role of the resident geologist is irreplaceable to the local prospector, and to the networking between the prospectors and representatives of the junior mining companies

The consultants were frequently reminded of the role of the local prospector: *most significant mines are located by the prospector*. Other subjects on which the local prospectors feel very strongly include map staking, a service delivery mechanism against which they vehemently opposed. Whereas objections to ERLIS were made on the basis of the difficulty in browsing documents and maps, map staking brought angry retorts as it is seen to deprive the prospectors and claim stakers of badly needed revenue.

In addition to venting their views on some of the more controversial items on the agenda, attendees at the workshops provided a much needed view of the differences among the various provincial regions, as well as providing a basis for determining which ministry field services meet which business needs. Further detail on the results of the focus sessions can be found in Volume 2, *Model Office Project: The Public Consultation Process*.

Survey questionnaire

The survey questionnaire was developed to accompany the notification on the focus sessions, so that industry representatives, unable to attend the focus sessions themselves, could submit their input to the study. The questionnaire was circulated to nine key associations, with the intent that they would forward the questionnaire to their members who were interested in responding. Judging by the returns from certain areas of the province this was certainly well done.

Staff in the resident geologist's offices were also requested to make the questionnaire known to their clients, with a view to mailing out the questionnaire to interested clients.

338 questionnaires were received by Prior & Prior by February 27th, one week following the deadline. Responses received after this date, will be forwarded to the Ministry, ADM's office for consideration. Responses to the first 39 questions were tabulated from the database once the questionnaires were entered. Five (5) questions containing from 80 to 250 responses (out of 338), also were analyzed for significantly different comments or ideas. Products and services rated on the questionnaire can be found in Volume 2, *Model Office Project: The Public Consultation Process*.

Interviews with other jurisdictions

The consultant interviewed representatives from the following jurisdictions: Newfoundland, Nova Scotia (very brief), Quebec, Manitoba, British Columbia and the Northwest Territories.

The interview guide used during the telephone interviews can be found in Appendix B. Key aspects of the interviews addressed:

- the resident geologists field organization
- the role of information technology for assessment and mining claim data
- the role and extent of the mining recorder function
- the perspective on map staking, in place or planned.

The various perspectives discussed during the benchmark interviews have been referenced in the following chapters as relevant to the issues, options and conclusions. Details of the interviews themselves can be found in Volume 2, *Model Office Project: The Public Consultation Process*.

Through the consultative process, the consultants provided the Ministry with a due diligence approach to securing the input of the mining industry to the range of possible changes identified by Ministry staff the mining community. Despite some significant areas of difference (eg, map staking), there was considerable consensus on a variety of issues which could be implemented by the ministry to reduce expenditures. More details on these suggestions are contained in later chapters.

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3.

THE MINERAL EXPLORATION AND MINING INDUSTRY

Significance of the industry to Ontario

“Ontario has rich deposits of base and precious metals and substantial reserves of industrial minerals. There are more than 50 producing mines in the province, among them proven producers of gold, nickel, cobalt, copper, zinc, silver, platinum, barite and dimension stone. Ontario is also home to more than 300 Canadian companies providing mining related services and equipment” to domestic and international markets (*Resourceful People Working for You*, MNDM publication)

At every consultation with industry stakeholders and division staff, participants impressed upon the consultants the significance of the mineral exploration and mining industry as a generator of wealth within the Ontario economy. Various Ministry publications estimate that the industry provides between \$4 Bn to \$7 Bn annually. Industry stakeholders stressed the employment generated across the province (approximately 72,000 jobs) and the significance of that employment to the economic well-being of some 50 towns and cities in Ontario.

The industry makes a substantial annual contribution of approximately \$90,000,000 to government revenues through the Mining Royalty Tax and various fees and acreage taxes, based on a ten year average, and at the height of exploration activity, as high as \$200,000,000.

Importance of industry to this study

Industry stakeholders repeatedly stressed the significance of the services provided by the field operations of the division to the continuing health of the industry. For this reason, the consultants have put considerable effort into understanding the cycle and structure of the industry and the role of the division in supporting the industry.

Mining sequence and structure of the industry

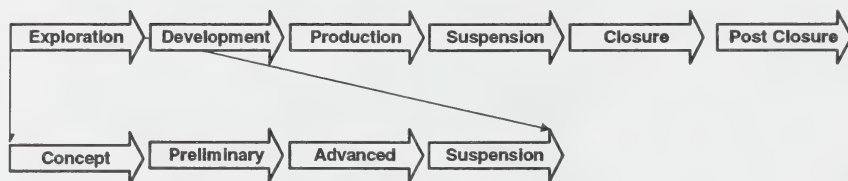
The mineral exploration and development industry is important to the economy of the province as a whole and is critical to the well being of Northern Ontario. The industry is, by nature, very risky since substantial sums must be invested in exploration to identify, define and establish the ownership of, and rights to develop, commercially viable mineral occurrences. Exploration companies are continuously assessing these risks when deciding whether to invest in Ontario, other Canadian provinces, South America, Africa or other locations.

This summary of the industry includes a description of the interaction between industry players and the field operations of the division. A detailed description of the division's field operations is included in the next chapter.

Mining sequence

There is a cycle or sequence of events in the mineral exploration and mining industry from the initial stages of exploration through mine development, production and closure. The Mining and Land Management Branch identifies six stages in this mining sequence (Figure 3-1).

Figure 3-1. The Mining Sequence



Exploration stage

The exploration phase involves the greatest level of risk since explorationists have very little certainty as to whether their activities will lead to commercially viable discovery. There are four phases in the exploration stage:

- *concept development*

Explorationists formulate their geological models and exploration strategy, using basic scientific data (geological maps, geophysical surveys) from the OGS and the results of previous exploration work from the assessment files at Resident Geologist District Offices.

- *preliminary exploration*

They acquire any required prospectors licences from a Mining Lands Office (or work permits from MNR), and begin exploring ground which fits the profile of their models and strategy. This stage ends with the acquisition of mineral title for specific properties usually through the staking and filing of mining claims at a Mining Lands Office.

- *advanced exploration*

Explorationists begin detailed exploration of the acquired ground through air and ground geophysics, geochemical analysis, stripping and trenching, sampling and analysis, drilling, etc. Explorationists may ask the Resident Geologist in their district to visit the property and advise them on how to proceed with advanced exploration. Independent prospectors will generally option their properties at this stage to junior or senior mining companies or other investors to raise the necessary money. Assessment work is compiled in work reports and filed with a Mining Lands Office to retain title. Explorationists may seek the assistance of a Mineral Development Coordinator to help acquire the necessary permits to proceed with advanced exploration.

- *deposit evaluation*

After a mineral inventory of the property, ore reserves are estimated and feasibility studies are conducted into the commercial viability of the discovery. If developing the property appears feasible, the explorationist will consult with the Mineral Development Coordinator for assistance in leasing the property and securing permits for development and production activities.

“Boom and bust” nature of the industry

The mining sequence can span decades. The time taken to move through the exploration and development phases usually takes several years. The stages of the mining sequence can lead to significant boom periods in the economy of areas where discoveries are made. There are two major boom periods:

- *increased exploration activity*

When a significant discovery is made, it creates a “staking rush” in which exploration activity is stepped up in the general area of the discovery or in other areas which fit the profile of the discovery model.

- *production period*

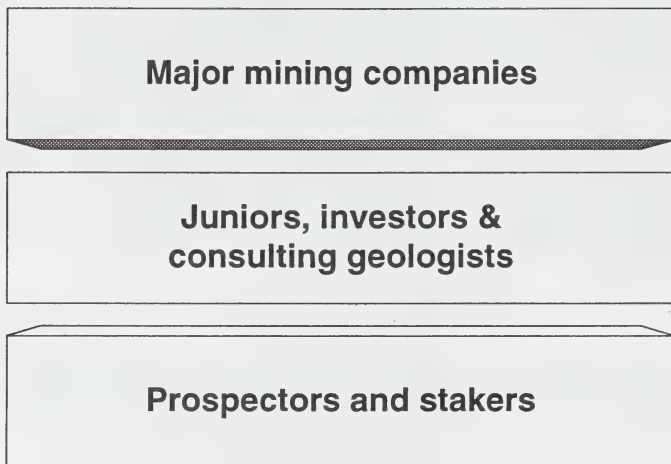
Putting a mine into production leads to significant employment and spin off economic benefits to the local area.

The consultants noted that the structure of the division's field operations and the location of its field offices must take this boom and bust cycle into account.

Structure of the mineral exploration industry

The mineral exploration industry is characterized by a three tier structure (Figure 3-2).

Figure 3-2. Structure of the mineral exploration industry



1. The bottom tier includes the front-line, independent prospector, contract claims stakers, property or claim optioners and the small local investor. There are approximately 3,000 registered prospectors; 500 of them are very active.
2. The second tier includes the junior mining companies, consulting geologists, and speculative investors.
3. The third tier includes the major mining companies, both national and international. The majors operate globally.

This structure helps manage mineral exploration risk. The prospector tier operates in the preliminary exploration phase where the risk is greatest. They manage their costs very tightly since the independent prospectors, in particular, do not get paid until they have staked a property which shows enough promise to be optioned to local investors or to a junior or major mining company. Their investment or capital in the process is "sweat equity". In this way, exploration risk is spread among many individuals who manage their resources very carefully. Juniors and consulting geologists may also option their properties both locally and internationally.

Mineral exploration activities are actually initiated from within any tier and will migrate up or down according to the stage of the mining cycle (ie, exploration, development, and production). Changes in the commodities markets and the investment climate can spark exploration activity just as promising discoveries can lead to staking rushes.

The majors operate with different exploration approaches and constraints than the independent prospectors and junior mining companies who are engaged in the bottom-up, exploration process. Ontario has regions characterized by both situations:

- Sudbury area is dominated by the majors
- the Northwest is dominated by the juniors and prospectors
- the Northeast has a mix of all three tiers.

Top down exploration

Major mining companies have a much wider area of interest when determining where to put their exploration efforts. They consider the entire province, other provinces and many other countries. They may initiate exploration to expand and complement existing mineral deposit holdings and to supply existing, under utilized production operations and expanding markets. Their local exploration focus is often determined by existing fixed assets that cannot be moved, such as mines, mills and smelters.

Majors and juniors will begin exploration with broad area surveys and research in files and maps without putting anyone on the ground. They will often research assessment files at Resident Geologist Offices based on geological models to come up with "regional plays" often targeted at specific greenstone belts. They then identify properties that require detailed, on-the-ground prospecting and claim staking. The majors therefore stimulate significant employment for prospectors and stakers at the local level.

Bottom up exploration

Typically, the bottom-up exploration process begins with small prospectors, local consulting geologists, and part-time explorers with low levels of capital investment and high levels of personal commitment. They traditionally cannot afford to initiate or participate in offshore plays. Recently, however, some serious prospectors have been starting to put together offshore plays because there has not been enough local exploration activity to keep them employed.

Prospectors may be seek to “shoulder-in” to sell an option on properties close to known deposits and producing mines. They may also research the claims abstracts and maps in Mining Lands Offices as well as assessment work reports in Resident Geologist offices for overlooked opportunities. Some start with claims and assessment files while others work in the field first. Anomalies discovered in the field will send prospectors to the claims abstracts to check if the ground is open for staking. With physical staking, they can also look around the area for existing claim posts.

When sufficient evidence of potential is made, the claim holder needs the participation of middle tier expertise, resources and financing. At this point the associated industry suppliers (eg, diamond drilling companies; consulting geologists) and investors become involved. When advanced exploration proves the existence of deposits, the properties may be optioned to the major mining companies with enough capital and interest to develop the property.

Business needs of the industry

The consultants used focus group sessions to evaluate the products and services offered by the division to the exploration and mining industry. The consultants identified the business needs of the industry which were met by these products and services. The industry representatives noted that the following business needs were supported by the division's field operations.

Critical business needs

- 1. Secure access and tenure to ground* At all stages of the mining sequence, the industry must have secure rights to explore ground, stake claims, lease properties, develop them and produce minerals. The regulatory activity of the division, supported by Mining Recorders and Mineral Development Coordinators helps to ensure an orderly and secure process of mineral exploration and production.
- 2. Obtain reliable geological information* To minimize exploration risks and costs, the industry requires access to objective, reliable and current information. The critical geological and exploration information provided by the division's field operations is described later in this section.
- 3. Avoid regulatory costs and uncertainty* To avoid costs of regulatory non-compliance where they are working, industry participants rely on the Mining Recorders and Mineral Development Coordinators for advice on, and interpretations of, the Mining Act and its associated regulations. The industry expressed a critical need for certainty and predictability in the regulatory regime, particularly given the long lead times and heavy investment associated with the stages of the mining sequence.

Other business needs

- Identify high potential opportunities* The industry depends on the division to help minimize exploration risks by identifying areas with the greatest mineral and commercial viability. Explorationists use assessment work reports in Resident Geologist offices to develop and test out exploration models and to identify what work has already been done in an area. They confer with Resident Geologists to develop models and to identify specific properties with significant potential.
- The Resident Geologists and the Mineral Development Coordinators help investors to connect with prospectors who have high potential properties that require advanced exploration or development.
- Minimize exploration cost* Explorationists will seek the advice of Resident Geologists on the most cost effective strategy for advanced exploration of a property.

The Resident Geologist often helps explorationists to connect with local suppliers of exploration services, including claims stakers, trenchers, diamond drillers, etc.

Information needs of the industry

The industry requires information on the following entities to support exploration activities:

- geology
- mining claims
- historical assessment work
- drill core samples
- Mining Act and regulations.

Geology

Explorationists require detailed and objective information on the geology of greenstone belts, townships and specific properties. The Resident Geologist and staff geologists are experts in the geology of their districts, and live in their districts. Geologists from the OGS are experts in the geological environment in which they focus their assessments, and travel in and out of these areas to further their analysis.

Mining claims

Explorationists require timely and accurate information on the location and status of mining claims, including claims which are due to expire. This information is made available through claim maps and abstracts at the Mining Division and Mining Lands Offices.

Historical assessment work

Explorationists require information on exploration work which has been done in specific regions and properties to formulate exploration models and to minimize exploration costs by not duplicating work that has been done. All Resident Geologist Offices provide access to paper copies of assessment files for the local district. Computer images of assessment files for the province are available on ERLIS workstations in four offices.

Drill core samples

Explorationists require drill core samples when formulating exploration strategies for regional plays and for exploring specific properties. The division maintains six drill core libraries around the province where explorationists can see the results of previous drilling efforts. Since drill holes are very expensive, the drill core libraries can reduce exploration costs by limiting the number of new holes which need to be drilled.

Mining Act and regulations

The orderly exploration and development of mineral resources is governed primarily by the Mining Act and its associated regulations. The Mining Recorder and Senior Recording Clerks inform industry clients about and help them interpret the provisions of the Act and regulations.

4.

CURRENT FIELD ORGANIZATION OF MINES AND MINERALS DIVISION

Mission of the division

The Mines and Minerals Division of the Ontario Ministry of Northern Development and Mines generates new wealth and benefits for Ontario residents by stimulating the environmentally sustainable use of the province's geology and mineral resources and provides objective information on the geology of Ontario. The division attracts investment in mineral exploration and in the development and use of mineral resources.

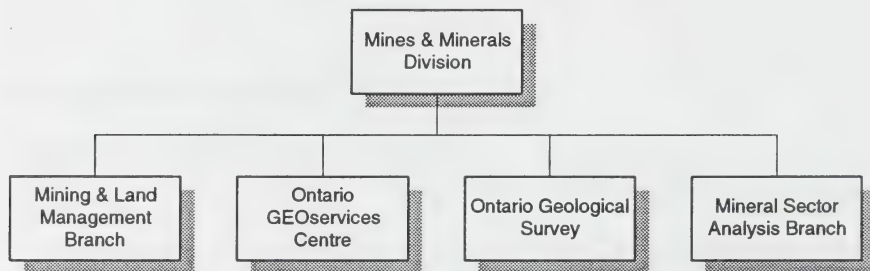
The field organization of the division defines the scope of the model office project. This chapter describes the current field organization within the context of the overall division.

Structure and role of the division

Organizational structure

The division is organized into four branches (Figure 4-1). Two branches manage field operations while a third supports field operations. The descriptions of the mandate of these branches is taken directly from *Call on Us*, a publication of the division.

Figure 4-1. Organization of the Mines and Minerals Division



Ontario Geological Survey

The Ontario Geological Survey (OGS) provides leadership in understanding the geology of the province; it collects, interprets, maintains and disseminates geoscience data; and provides information and advisory services to the mineral industry, other government ministries and agencies, educational institutions, interest groups and the public via a network of offices located throughout the province.

The branch operates two programs:

- Resident Geologist Program delivered in the field
- geoscience expertise delivered through head office

Mining and Land Management Branch

This branch encourages, promotes and facilitates the environmentally responsible development of Ontario's mineral resources, and provides orderly, equitable processes ensuring public access to Crown mineral rights.

The branch operates two programs which are delivered by the field operations of the division:

- Mining Recorder Program
- Mineral Development Program.

Ontario GEOservices Centre The Ontario GEOservices Centre provides state-of-the-art electronic data base, library, publication and laboratory services to the division and its client base.

This branch does not operate any field programs but it does provide support particularly to the Resident Geologist Program. Four Resident Geologist Offices provide access to the Earth Resources Library Information System (ERLIS), a set of geological databases maintained by this branch. The publications developed by this branch are also sold by Resident Geologist and Mining Recorder field offices.

Mineral Sector Analysis Branch

This branch co-ordinates the Division's program planning, development and evaluation functions. It prepares briefing materials, develops land use planning policy, undertakes the co-ordination of intra-divisional and inter-governmental initiatives, and provides public information on Ontario's mineral resources and mining industry. It does not operate any field programs.

Roles and responsibilities of the division

The Mines and Minerals Division fulfils its mission by playing two key roles:

- regulating the mineral exploration and mining industry to ensure that the mineral wealth of the province is discovered and developed in an orderly fashion
- generating and providing critical information services to the industry.

By serving the interests of the orderly development of mineral wealth, the division plays a major, but indirect role, in improving the economy of the province, in general, and local mining communities, in particular.

Regulatory role

As the primary regulator, the division supports and protects a healthy mineral exploration and mining industry. It regulates all phases of the mining cycle from granting of prospector licences to mine rehabilitation. It establishes and protects land tenure and mineral rights for explorationists, lessees and producing companies.

Information services role

Throughout its history, the division has been in the information business. It has developed, maintained and disseminated information on the geology of Ontario including general information on the state of the mines and minerals industry as well as specific information on mineral occurrences, mining claims and assessment files.

In the past, most of this information was maintained in the publications of the Ontario Geological Survey (OGS) and the assessment and mining claims files maintained by resident geologists and mining recorders in field offices and in drill core libraries. In recent years, the division has made a substantial investment in converting its valuable information resources from paper files and publications to electronic format maintained in the Earth Resource Land Information System (ERLIS).

*Indirect economic
development role*

Until the recent changes in government policy, driven by the need to reduce debt, the division had both a direct and indirect role in community economic development throughout Ontario. The division had a major responsibility for industrial and business development incentives. It dispensed grants and loans to various customer segments of the exploration and mining community. With the curtailing of direct funding programs, MMD returns to its historical roles as custodian and regulator of mineral resources, and generator and provider of geological and mining information services to the mineral exploration and mining industry.

The sheer presence of the division's field operations provides a spin off benefit to the economy of Northern communities. The extent of their dependence upon these operations varies according to the size of these communities and the diversity of their local economies. Any redesign of the field operations of the division must be mindful of the potential impact on these communities.

*Mission critical
responsibilities of the
division*

The division has the following mission critical responsibilities:

- Ensuring orderly and fair exploration and development activity through regulating compliance with the Mining Act and environmentally sustainable practices
- Encouraging the creation of new wealth through mineral exploration and mining activity
- Fostering a competitive environment to encourage private sector investment in mineral exploration, development and production
- Maximizing the province's return on its mineral resources.
- Balancing competing land uses while preserving the health of the mineral resources and mining industry
- Providing an understanding of the geology of Ontario to stimulate mining exploration in an environmentally sound manner
- Minimizing the financial costs and risks to the Mines and Minerals Division.

Field operations of the division

The division's field operations are delivered through three programs reporting to two branches. Each program will be described in turn.

Resident geologist program

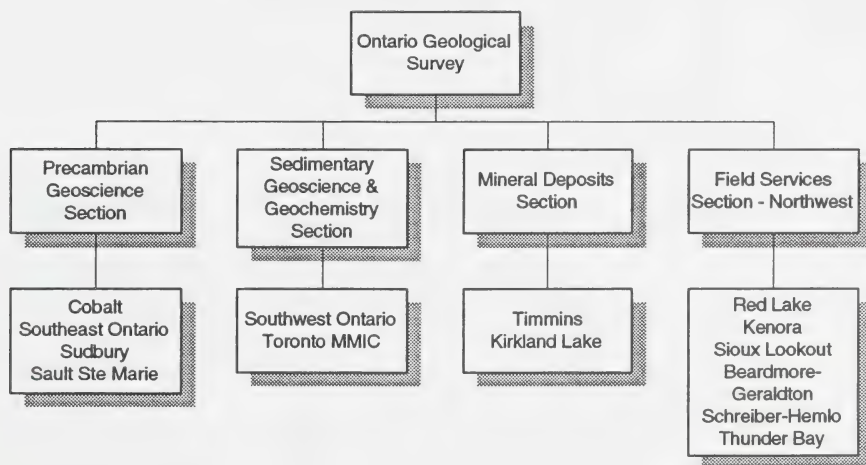
Mandate

The Resident Geologist Program is administered by the Ontario Geological Survey. Its mandate is to monitor, stimulate and facilitate economically sustainable and environmentally sound exploration for, and development of, all of the province's mineral resources for the betterment of all Ontario.

Reporting structure

There are thirteen Resident Geologists, each responsible for a territory termed a "District". The districts are organized under four sections of the OGS (see Figure 3-2). The sections are differentiated by the geological and administrative characteristics of the districts. The Northwest Field Services Section is the largest grouping with six districts. This is the only Section that operates field services in which the Section Chief is housed in a regional field headquarters.

Figure 4-2. Resident Geologist Reporting Structure



Resident Geologist services

The following services are provided by Resident Geologist offices. These services were identified in a workshop with division staff in December. They were included in the questionnaire sent to industry stakeholders and were reviewed in the focus group workshops with stakeholders. Table 3-1 summarizes the ranking of these services by the questionnaire respondents.

Table 4-1. Ranking of Resident Geologist Services

<i>Service</i>	<i>Weighted Rank</i>
Assessment file and other databases	1.0
Exploration and development consultation	0.9
Geoscience publications library	0.7
Drill core library	0.6
Sale of geoscience publications	0.6
Prospector classes	0.5
Public presentations and symposia	0.4
Land use planning in support of municipal initiatives and potential land alienation	0.4

*Access to assessment files
and electronic databases*

Resident Geologists maintain several important libraries of geological information for their districts in particular and the province in general. According to the clients of the residents, the most important of these libraries is the assessment work reports. Two copies of assessment work reports are filed at Mining Recorder offices for credit to keep mining claims in good standing. One copy of these files is maintained by the local Resident Geologist office. Residents provide valuable assistance in helping to search, interpret and analyze the assessment work reports for their districts.

Assessment files for the entire province have been scanned in electronic image format (the Assessment Files Research Images or AFRI). They represent a key information layer in the Earth Resources Library Information System (ERLIS). ERLIS workstations are available in four offices: Sudbury, Toronto, Timmins and Thunder Bay. In these four offices, office staff provide training and assistance to clients in the use of ERLIS.

Whether they have used ERLIS or not, clients impressed on the consultants *the absolute importance of the current paper assessment files* to their exploration work.

Two of the major reasons given by clients for maintaining access to the paper files include:

1. the ERLIS data is currently incomplete, so explorationists are forced to go to the paper files to find any missing data (although a project is currently underway to bring the ERLIS version of the assessment files up-to-date and complete)
2. the user interface used to pan and zoom over scanned maps is not nearly as efficient or intuitive as working with paper maps to compile a picture of an exploration property.

A more detailed analysis of ERLIS is provided in Chapter 7 of this report.

*Exploration and
development consultations*

Resident and staff geologists consult with clients on local geology as well as exploration strategies and opportunities. They provide referrals to connect prospectors with potential investors and suppliers of advanced exploration and development services. They provide objective opinions on the geology of particular exploration properties for clients and investors interested in optioning the property. On request they will perform property visits and or hold in-office consultations.

They maintain and interpret specialized professional, technical and scientific information regarding the geological character and mineral deposits of their districts. They also have a detailed knowledge of historical and current exploration work and activities in their districts.

*Access to the drill core
library*

Seven districts provide access to seven drill core libraries throughout the province. Access to libraries is provided on request.

*Access to the geoscience
publications library*

Resident offices maintain a library of geological and geoscientific information from the OGS and other sources. Reference material includes geological maps as well as technical and scientific reference publications and periodicals.

*Land use planning
consultations*

Geological staff consult about and review the mineral potential and geological significance of areas in land use plans for municipalities, regulatory organizations and various levels of government. They prepare mineral resource potential reports on behalf of the Division.

Holding prospector classes

Geological staff hold prospectors courses to train new prospectors in mineral exploration strategies and techniques.

Making public presentations

Geological staff make public presentations to schools and other community venues. They also speak at annual mineral exploration symposia.

Other functions

Geological staff also handle other functions not listed in the questionnaire including:

- receipt, handling and interpretation of MMD laboratory assays
- support of OGS mapping, geoscientific surveys, special projects, studies and reports.

Field offices

There are 13 Resident Geologists and 1 Geoscientist operating 5 types of field offices in 18 facilities under the Resident Geologist Program. The types of field offices include:

- 1 Regional Office (Thunder Bay)
- 10 Permanent District Offices
- 2 seasonal District Offices (Beardmore-Geraldton and Schreiber-Hemlo)
- 1 Mines and Minerals Information Centre (Toronto)
- 6 Drill Core Libraries (associated with 7 district offices).

Table 4-3 summarizes the Resident Geologist district offices and facilities by OGS Section.

Staffing

Table 4-2 summarizes the 1995-96 staff and budget of the field offices of the program, sorted by budget.

Table 4-2 Resident Geologist 95-96 staff and budget

Office	Staff	Budget
MMIC	6	\$ 389,400
Timmins	4	\$ 233,200
Beardmore-Geraldton	4	\$ 229,200
Southeast Ontario	3	\$ 208,400
Sault Ste Marie	3	\$ 198,000
Kirkland Lake	3	\$ 193,500
Sioux Lookout	3	\$ 190,100
Kenora	3	\$ 188,500
Sudbury	3	\$ 187,300
Cobalt	3	\$ 186,700
Red Lake	3	\$ 183,800
Southwest Ontario	3	\$ 181,400
Schreiber-Hemlo	2	\$ 150,600
Thunder Bay	2	\$ 146,800

Table 4-3. Resident Geologist Offices

District	Municipality	Office Type	Facility
Northwest			
Kenora	Kenora	Resident Geologist District Office	808 Robertson St
		Drill Core Library	Kenora Drill Core Library
Red Lake	Red Lake	Resident Geologist District Office	OGB, 227 Howey Street
Sioux Lookout	Sioux Lookout	Resident Geologist District Office	Queen & Fourth
Thunder Bay	Thunder Bay	Resident Geologist Regional Office	435 James Street
		Drill Core Library	Thunder Bay Drill Core Library
Mineral deposits			
Kirkland Lake	Kirkland Lake	Resident Geologist District Office	4 Government Road
Porcupine	Timmins	Resident Geologist District Office	60 Wilson
		Drill Core Library	Junction Hwy 66 and 112
Precambrian Geoscience			
Cobalt	Cobalt	Resident Geologist District Office	Presley Street
Sault Ste Marie	Sault Ste Marie	Resident Geologist District Office	60 Church Street
		Drill Core Library	SSM Drill Core Library
Southeastern Ontario	Tweed	Resident Geologist District Office	Old Troy Road
		Drill Core Library	Tweed Drill Core Library
Sudbury	Sudbury	Resident Geologist District Office	933 Ramsey Lake Road
Sedimentary Geoscience and Geochemistry			
Southwestern Ontario	London	Resident Geologist District Office	667 Exeter Road, London
		Drill Core Library	London Drill Core Library
Toronto	Toronto	Centre	Macdonald Block

Activity levels

Table 4-4 shows the 1994 activity levels of district offices. The activity levels documented include:

- visits in person to the office by clients
- telephone and written inquiries to the office
- visits by a resident or staff geologist to a client's property
- work permits issued in the district (incomplete data)
- average number of exploration projects active in a given month (incomplete data)
- average number of drill rigs active in a given month (incomplete data).

The first three categories were summed to give a total activity number. The offices are listed by total activity for the year from highest activity to lowest activity.

Note re MMIC activity numbers

The activity level for the Mines and Minerals Information Centre reflect the fact that it has a general information role. Many of the visitors to the centre are students at all levels and members of the general public, rather than core clients from the mineral exploration and mining industry.

Table 4-4. Resident Geologist Activity Levels

Resident Geologist Office Activity by Total Activity: 1994						
District/Name	Inquiries In Person	Phone/Written Inquiries	Property Visits	Total Activity	Work Permits	Active Projects
Toronto	6,924	9,294	0	16,218		
Porcupine	2,416	3,966	15	6,397		65
Sudbury	1,851	4,356	27	6,234		12
Kirkland Lake	2,443	2,217	27	4,687	134	35
Southeastern Ontario	1,391	3,260	11	4,662	0	5
Red Lake	1,329	2,057	8	3,394	34	7
Southwestern Ontario	270	2,313	57	2,640		
Sault Ste Marie	912	1,556	11	2,479		
Cobalt	1,178	883	27	2,088	78	7
Beardmore-Geraldton	1,459	579	24	2,062	51	16
Schreiber-Hemlo	739	901	72	1,712	39	12
Kenora	875	780	17	1,672	30	5
Stouffville	460	1,000	20	1,480	7	
Thunder Bay	520	645	38	1,203	52	8
	22,767	33,807	354	56,928	425	172
						80

Mining recorder program

Mandate

The Mining Recorder Program provides field support for the mandate of the Mining Lands Section to “provide orderly and equitable processes that ensure public access to Crown mineral rights for the exploration and potential development of mining lands” (*The Mining and Land Management Branch*, MNDM publication). The same document highlights the specific responsibilities of the program:

- Ensuring high levels of efficient and consistent administration of the Mining Act as it pertains to mining lands tenure
- Providing clients with access to accurate and timely mining lands information for security of tenure
- Providing clients with a database of high level integrity
- Fostering strengthened communications with clients and other ministries in the management of Crown lands
- Adjudicating mining claim disputes.

Reporting structure

Seven Mining Recorders administer nine Mining Lands Divisions. (The Sudbury Mining Recorder also administers the Southern Ontario Mining Division.) The Mining Recorders report to the Chief Mining Recorder (Figure 3-3).

Mining Recorder services

The following services are provided by Mining Recorder offices. These services were identified in a workshop with division staff in December. They were included in the questionnaire sent to industry stakeholders and were reviewed in the focus group workshops with stakeholders. Table 3-5 summarizes the ranking of these services by the questionnaire respondents.

Recording mining claims and assessment work reports

Mining Division and Mining Lands Offices register mining claims and assessment work reports submitted for assessment credit. They review and approve claims. They also perform an administrative review of assessment work report submissions for completeness. (Head office staff and Resident Geologists perform a review of the technical and scientific value, accuracy and completeness of the report and assign actual work credits.)

When claims are registered or expire, Mining Recorder office staff update claims maps and the Claims data base and files.

Table 4-5. Ranking of Mining Recorder Services

<i>Mining Recorder Services</i>	<i>Weighted Rank</i>
Mining claim recording	1.0
Access to Claims database information	0.8
Sale of claim tags, maps and geoscience publications	0.8
Mining lands and mining act consultations	0.7
Mining claim dispute resolution	0.4
Other (ex. receipt of reports/ advice/ surveying)	0.1

Field office staff provide advice and consultation regarding the Mining Act, its regulations and the division's policies regarding claims staking and assessment work. At the front counter, they instruct and assist clients concerning claim staking, claim filing and assessment work. They provide guidance and instruction on the administrative rules and assistance in completing forms. Staff also provide information about the activities of the Division and exploration and mining community (within the limits of confidentiality regarding assessment work).

Resolving mining claim disputes

The Mining Recorder resolves and rules on disputes over mining claims and staking. The Mining Recorder is the only role in the Ministry which is quasi-judicial. Their decisions are legally binding under the Mining Act and they may be appealed to the Mining and Lands Commissioner, and also to the Ontario Court (General Division).

Providing claims information

Mining Recorder offices provide access to timely and accurate claims information via the Claims and Client Service system. They also locate existing claims on claims maps. Clients noted that the current system is somewhat limited in that the Claims database in an office only contains mining claims data for that mining division.

The division is currently completing a pilot project to capture mining claim maps in digital form for the Sudbury area. Such a mapping system for claims, available across the province, would be a very valuable asset for wide distribution.

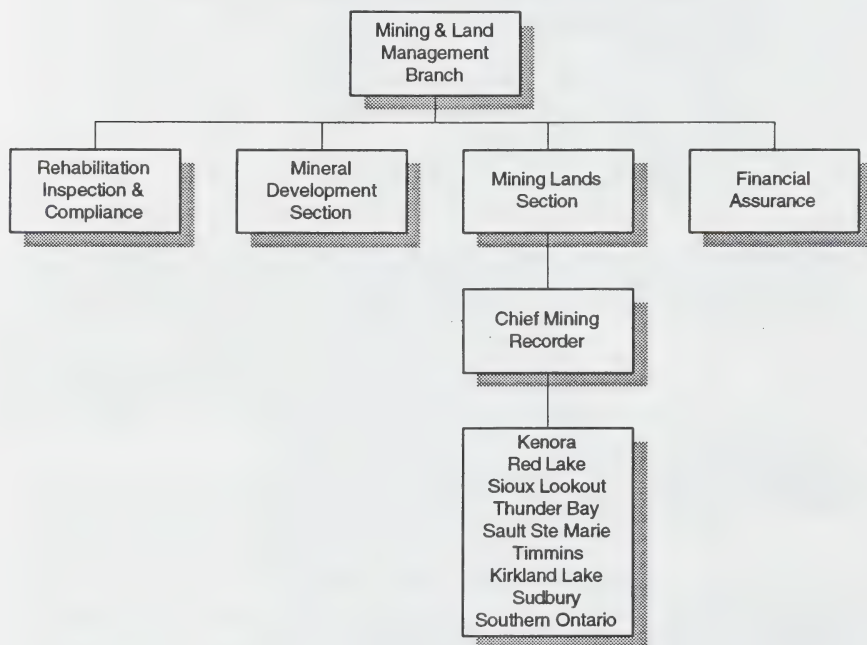
Selling licences, claim tags, maps and publications

Mining Recorder offices administer the sale of Prospector Licences and claim tags. They also process orders for and sell OGS publications.

Mining Recorder regulatory role

The Mining Recorder Program also supports the Division's regulatory role. The Mining Recorder offices manage their regulatory versus service role dichotomy by both a formal and informal division of responsibilities between the front-line administrative and counter service personnel, on the one hand, and Mining Recorder and Chief Mining Recorder, on the other.

Figure 4-3. Reporting Structure for Mining Recorder Program



Mining Recorder clerks primarily focus on the service role of helping clients with the filing of claims and assessment reports and accessing claims information and the sale of publications. The Mining Recorders play the role of authorizing and approving the registration of claims and the acceptance of assessment work reports along with the role of claims dispute mediation (informal and formal mediation). This split helps to resolve the conflicting requirements of service delivery versus regulation.

Field offices

There are 7 Mining Recorders operating 2 types of field offices in 9 facilities under the Mining Recorder Program. The types of field offices include:

- 7 Mining Division Offices, run by a Mining Recorder
- 2 Mining Lands Offices (Toronto and Red Lake), run by Senior Recording Clerks who report to Mining Recorders.

Table 4-6 summarizes the Mining Recorder field offices and facilities by Mining Division. The Kenora and Red Lake Mining Recorders both operate out of the Kenora Mining Division Office.

Table 4-6. Mining recorder field offices

Mining Division	Office Type	Facility	Municipality
Kenora	Mining Division Office	808 Robertson St	Kenora
Larder Lake (Kirkland Lake)	Mining Division Office	4 Government Road	Kirkland Lake
Patricia (Sioux Lookout)	Mining Division Office	Queen & Fourth	Sioux Lookout
Porcupine (Timmins)	Mining Division Office	60 Wilson	Timmins
Red Lake	Mining Lands Office	OGB, 227 Howey Street	Red Lake
Sault Ste Marie	Mining Division Office	60 Church Street	Sault Ste Marie
Southern Ontario (Toronto)	Mining Lands Office	Macdonald Block	Toronto
Sudbury	Mining Division Office	933 Ramsey Lake Road	Sudbury
Thunder Bay	Mining Division Office	435 James Street	Thunder Bay

Staffing

Table 4-7 summarizes the 1995-96 staff and budget of the field offices of the program, sorted by budget.

Table 4-7. Mining Recorder 95-96 staff and budget

Office	Staff	Budget
Porcupine (Timmins)	8	\$369,200
Thunder Bay	8	\$315,900
Larder Lake (Kirkland Lake)	6	\$291,800
Sault Ste Marie	5	\$222,900
Patricia (Sioux Lookout)	3	\$158,400
Kenora	3	\$156,000
Sudbury	3	\$150,300
Red Lake	2	\$108,500
Southern Ontario (Toronto)	1	\$ 62,400

Customers and activity levels

Table 4-8 summarizes mining claim activity for 1994.

Table 4-8. Mining claim activity levels

Mining Division	Units Recorded	Units Cancelled	Active Units	Assessment Value
Larder Lake (Kirkland Lake)	6,536.00	6,710.00	28,113.00	\$3,781,000.00
Porcupine (Timmins)	19,638.00	6,187.00	47,497.00	\$3,422,800.00
Patricia (Sioux Lookout)	2,114.00	2,297.00	11,867.00	\$2,849,500.00
Thunder Bay	6,197.00	7,296.00	29,191.00	\$2,119,500.00
Red Lake	971.00	1,518.00	7,947.00	\$1,508,600.00
Sudbury	3,792.00	2,997.00	6,738.00	\$1,209,700.00
Kenora	2,946.00	3,173.00	9,823.00	\$1,191,800.00
Sault Ste Marie	2,440.00	2,000.00	10,329.00	\$1,136,700.00
Southern Ontario (Toronto)	280.00	427.00	1,535.00	\$364,500.00
Total	44,914.00	32,605.00	153,040.00	\$17,584,100.00

Mineral development program

Mission and mandate

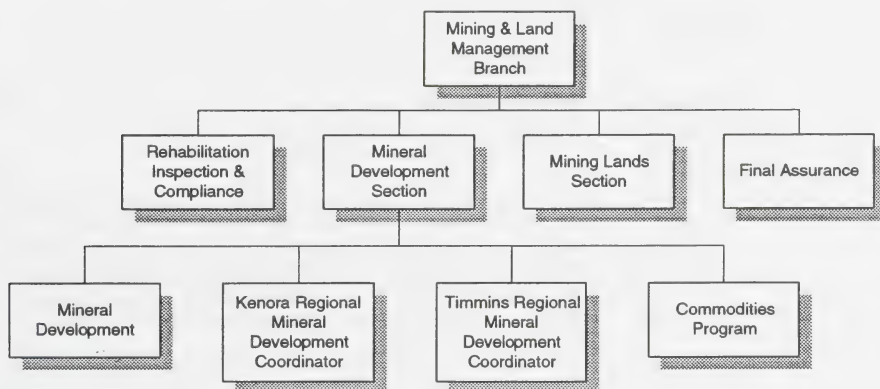
The mandate of the Mineral Development Program is “to promote and facilitate mineral exploration and development to ensure that the province’s mineral resources are developed in an environmentally responsible manner.” (*The Mining and Land Management Branch*, MNDM publication). The same document highlights the specific responsibilities of the program:

- Provide the “one window” approach for permitting
- Provide technical reviews to NOHFC for mining-related projects
- Team leaders for permitting of Advanced Exploration and New Mining Developments
- Review Notice’s of Advanced Exploration and facilitate public meetings required under Section VII of the Mining Act
- Foster strong communications with clients to increase mineral development opportunities and technical expertise
- Assess the viability of proposed operations.

Reporting structure

The Mineral Development Coordinators constitute the smallest functional element of this study with six professional personnel assigned to three regional territories covering the entire province. This group has both a service delivery and a regulatory responsibility. They report to the Mineral Development Section Chief (See Figure 4-4).

Figure 4-4. Mineral development reporting structure



There are six Mineral Development Coordinators situated in three locations: Kenora (Northwest); Timmins (Northeast); and, Sudbury (Central and South). The northern regions of the Province have the greatest need for the services of the coordinators. The north is largely Crown Land with tenure assigned and regulated by the Province's Mining Records. A thriving exploration and mineral development industry in the northern Crown lands means that explorationists and developers apply for a high volume of work permits to several Provincial and federal regulators.

Mineral development services

The following services are provided by Mineral Development Coordination offices. These services were identified in a workshop with division staff in December. They were included in the questionnaire sent to industry stakeholders and were reviewed in the focus group workshops with stakeholders. Table 4-9 summarizes the ranking of these services by the questionnaire respondents.

Selected telephone interviews were undertaken with customers of the Mineral Development function to determine the quality and level of satisfaction which customers experienced. The feedback was very positive about the importance of the mineral development role, and in particular, the quality of relationships with specific coordinators.

Table 4-9. Mineral Development Coordinator Services

<i>Mineral Development Services</i>	<i>Weighted Rank</i>
One window permitting for mineral development	1.0
Consultation on permitting	1.0
Consultation on development opportunities	0.9

One window permitting for mineral development

Mineral Development Coordinators facilitate a "one window permitting" service to help clients acquire the required permits for advanced exploration and development activities. The general view of most clients surveyed and interviewed is that the "one window permitting" concept is a nice concept but that neither the coordinators nor the Ministry have the authority and "weight" to control or manage permitting from other Ministries and agencies.

Consultation on and facilitation of development opportunities

The coordinators facilitate relationships between the industry, on the one hand, and stakeholder groups, on the other. These stakeholders include municipalities, First Nations and Band Councils, other regulatory organizations and representatives of other industry representatives who are or may be affected by advanced exploration and mine development activities.

In the northwest, in particular, the coordinators play a key role in facilitating relationships and settling the disputes between the advanced exploration and mining development sector and the Aboriginal communities and First Nation organizations. Several clients and MMD staff stipulated that the Aboriginal Land Claims and associated mineral rights and Crown lands access issues is the single most important strategic constraint and uncertainty in Ontario's northern mineral exploration and mining industry's future.

Consultation on permitting

The regional coordinators in the northwest and northeast are largely involved in facilitating and coordinating the work permitting processes on behalf of the industry. Disputes and potential disputes have been managed and classified by the coordinators.

End of incentive programs

The coordinators used to administer prospecting and exploration development and incentive programs. Since most incentive programs have been terminated, this function has been curtailed as a division function and as a part of the coordinator's job.

Field offices

The Mineral Development Coordinators operate regionally. In addition to a head office operation in Sudbury, the division operates two regional field offices (Table 4-10).

Table 4-10. Mineral Development Regional Offices

Region	Facility	Staff
Kenora	101 Chipman Street	3
Timmins	60 Wilson	3

Customers of the division

In a workshop with staff of the division, the consultants identified the customers of the division's field operations. The customer base was segmented by several categories.

Customers by industry

The primary customer base of the division's field operations belongs to the mineral exploration and mining industries. The previous chapter outlined the structure of this industry and the relationship between field operations and the industry.

To a much lesser extent, field operations provides geological information to the land development industry to support municipal official plans, alienation for parks, etc.

Customers by profession, occupation or other capacity

Customers who use the division's field services generally work in one of the following major professions or occupations:

- prospector (including staker, claimholder, lessee or patentholder)
- consultant or other professional (including exploration or mining consultants, geotechnical engineer, lawyer, auditor, environmental consultant, or land use planner)
- investor or promoter
- contractor
- mine operator
- academic researcher.

In addition, customers in the capacity of land owner or citizen may also use the division's field services.

Customers by sector

Most of the division's customers at the field level work in the private sector. There are, however, a number of public sector and non-profit sector clients of the division, particularly in the areas of land management, land use planning and geological research.

Customers by organization type

Within the mineral exploration and mining industry, the following types of organizations use the division's field services:

- major mining company
- junior mining company
- consulting company.

In addition, the following other types of organizations from the public and non-profit sectors use these services:

- aboriginal first nation
- municipal government
- provincial government
- other government
- academic institution.

Summary of current types of offices and service zones

Types of offices

Table 4-11 on the next page summarizes the field office facilities currently operated by the division. The division operates 8 types of field office out of 19 facilities across the province. The office types include:

1. Resident Geologist Program
 - Regional office
 - District office
 - Seasonal satellite office (operated out of regional office facility)
 - Drill core library
 - Mines and minerals information centre.
2. Mining Recorder Program
 - Mining division office
 - Mining lands office
3. Mineral Development Program
 - Regional office.

Current service zones

The field operations of the division have currently have four levels of coverage: provincial, regional, mining division and district.

Provincial coverage

The Mines and Minerals Information Centre in Toronto is a field office with provincial coverage. In addition, the other three Resident Geologist Program offices with ERLIS workstations provide access to province wide geological and assessment file data via ERLIS.

Regional coverage

Mineral Development Coordinators operate regionally. In addition, the Thunder Bay office of the Resident Geologist Program currently provides regional administration of six offices, including four permanent district offices and two seasonal satellite offices.

Mining division

The Mining Division and Mining Lands Offices provide coverage of the nine mining divisions of the province.

Resident geologist district

There are 13 Resident Geologist districts in the province, served by one regional office (Thunder Bay), ten permanent district offices and two seasonal satellite offices.

Table 4-11. Summary of the division's field office facilities

Region	Mining Division	Municipality	Facility	Office Type
Northeast	Larder Lake	Kirkland Lake	4 Government Road	Mining Division Office Resident District Office
	Porcupine	Timmins	60 Wilson	Mining Division Office Mineral Devt Office Resident District Office
			Junction Hwy 66 and 112	Drill Core Library
Northwest	Kenora	Kenora	101 Chipman Street	Mineral Devt Office
			808 Robertson St	Resident District Office Mining Division Office
			Kenora Drill Core Library	Drill Core Library
	Patricia	Sioux Lookout	Queen & Fourth	Resident District Office Mining Division Office
	Red Lake	Red Lake	OGB, 227 Howey Street	Resident District Office Mining Lands Office
	Thunder Bay	Thunder Bay	435 James Street	Resident Regional Office Mining Division Office
			Thunder Bay D.C. Library	Drill Core Library
South	Sudbury	Cobalt	Presley Street	Resident District Office
		Sudbury	933 Ramsey Lake Road	Resident District Office Mining Division Office
	Sault Ste Marie	Sault Ste Marie	60 Church Street	Mining Division Office Resident District Office
			SSM Drill Core Library	Drill Core Library
	Southern Ont	London	667 Exeter Road, London London Drill Core Library	Resident District Office Drill Core Library
		Toronto	Macdonald Block	Mining Lands Office MMIC
		Tweed	Old Troy Road Tweed Drill Core Library	Resident District Office Drill Core Library

5.

MODEL OFFICE DESIGN PRINCIPLES AND APPROACH

The last two chapters, along with the chapters on ERLIS and map staking summarize the major analysis performed by the consultants on the existing field operations of the division, in particular, and the context of the mineral exploration and mining industry, in general.

This chapter defines the principles and rationale for designing the model office based on the information from the analysis. It discusses the approach the consultants used in redesigning the division's field operations. It also describes the major design principles used by the consultants and discusses how they might be applied to the existing operation.

In chapter 6, the consultants apply the design principles and approach described in this chapter to the existing field programs of the division.

Rationale for designing the model office

The consultants used the following steps to redesign the field operations of the division:

1. identify the jurisdiction, core business and core customers of the division
2. identify the core field services of the division
3. identify the field service zones required by the division's customers
4. identify the core competencies required of staff to deliver the core field services
5. identify the levels of service required by customers
6. develop a profile of the types of field offices to operate in the future based on the core field business
7. develop a location model to determine where field offices are required
8. throughout the design process, apply other constraints to temper the model, including budgetary pressures and the potential impacts on the industry and local communities (for example, changes in service delivery should be constrained by the need to ensure the competitiveness of Ontario in the mining sector).

Jurisdiction and core business of division

Benefit of narrowing the scope of field operations

Given the current cost constraints faced by the government and the need to significantly cut operating budgets, the model office of the future will only have the resources required to support services which are deemed to be part of the core business of the division.

Narrowing the scope of field operations to core services is, in fact, a healthy development which is happening to field operations of many public and private sector organizations. Given the pace of change in the economy, in information and communications technology, and in the mineral exploration and mining industry, the division must periodically adjust its field operations to see that:

- they are focused on services which add significant value to the division's core customers
- they are delivered in the most cost effective manner possible to secure the greatest trade off between the cost of the service and the benefits it provides.

By clarifying the scope of its jurisdiction and its core customers, the consultants were able to determine what field services can be eliminated altogether from the Division because they are not part of the core mission and business of the division.

Focus on core business of the division

The core business of the division is to regulate and serve Ontario's mineral exploration and mining industry at several stages along the mining sequence. The consultants recommend that the division's field organization be confined to this jurisdiction, focusing primarily on:

- the early and advanced stages of mineral exploration
- the early stages of mine development
- regulatory control of the final stage of the sequence, rehabilitation and closure without the previous enforcement capability.

Mining production operations and mineral exploitation should remain the purview of the companies involved and the other government agencies and Ministries that regulate these activities.

Focus on mineral exploration and mining industry

The division should also focus on its primary customer group, ie, the mineral exploration and mining industry. It should withdraw from providing services to other customer groups.

Non-core customers include:

- rock collectors and hobbyists
- technical and professional groups not directly related to the exploration and mining community and its service industry
- general public
- municipalities
- other levels of government.

A fairly significant proportion of field staff time (over 60% in some offices) is dedicated to service to these non-core customers and stakeholders. In some Resident Geologist Districts, substantial staff time is dedicated to:

- serving the hobbyist, and responding to general inquiries regarding local geology (eg for cottagers)
- making presentations to school groups
- helping municipalities to develop and then reviewing land use plans and mineral potential reports.

Core field services of the division

Field operations for any large organization covering a substantial territory are crucial for meeting the needs of a dispersed customer base. They are, unfortunately, expensive to establish, operate and maintain. Large organizations must continually re-assess their field operations to ensure that they are delivering the highest value service at the lowest cost to the organization. In particular, an organization must regularly assess which services should be delivered through the field organization. Many large organizations are cutting costs and improving customer service by centralizing certain customer service operations in call centres and providing electronic access to information services.

For a core service of the division to be defined as a core service of field operations, it must meet the following criteria.

Convenience of customer access

A service should be devolved to field operations if a field office is the only convenient method for customers to gain access to the service. Convenience of customer access is a necessary and sufficient condition for a field service.

For example, most customers stressed the need to gain access to the paper assessment files. It would be extremely inconvenient for customers to have to go to a headquarters operation or travel several hundred kilometres to gain access to those files at a regional office.

Customers currently go to field offices to gain information on the status and location of claims. A number of focus group participants mentioned the Newfoundland Internet service where claims maps can be downloaded via the Internet. If such a service were available, and most customers had some means of gaining access to the Internet (directly or through local service providers), the division would not necessarily have to provide claims information as a field service.

Mixed comments from the questionnaire suggest that electronic communications are becoming more acceptable with some respondents while others continue to reject electronic communications as an acceptable method.

Necessity of frequent face to face interchange

If customers require frequent face-to-face interchange with a service delivery representative of the division, the service should be devolved to the field. Frequent is defined as daily or weekly interchange. This condition is actually a variant of convenience of customer access. It is also necessary and sufficient to define a service of the division as a field service.

A number of current customer interchanges can be handled by remote communications (phone, fax, mail and modem). For the service to be devolved to the field, it should require frequent face-to-face interchange. The division must strike a balance here. Customers rated the "personalized" service of the division's field staff very highly. Although many of the division's information services could be delivered by remote communications, customer satisfaction could fall as a result of the removal of the personal contact.

Responses to the questionnaire also suggest that elimination of some resident geologists offices would result in increased costs, travel time and delays (86 out of 225 responses). Some 25 responses out of 225 said it would be difficult to operate, while 25 of 225 wrote that elimination of the local resident's office would put them out of business.

Frequent need to visit customer sites

A related condition is the need to visit customer sites on a frequent basis. Such a service is by definition a field service. The need to deliver this service from a field office or a headquarters office is determined by the frequency of the event.

For example, Resident Geologists made 354 property visits in 1994. These property visits are highly rated by prospectors and investors as a way of determining whether a property shows sufficient promise to make investments in advanced exploration. Property visits could, of course, be conducted from head office. If the division is to continue offering this service, however, current volumes indicate that the service should be offered from field offices.

On the other hand, the division handles approximately 10 serious claims disputes each year. These disputes usually require field verification. These are handled through the Mining Recorder's program.

Need to know local conditions

Focus group participants and staff stressed the fact that significant differences exist among the regions of the province. These variations are related to historical patterns of settlement, the geology and greenstone belts of each region and the development and maturity of the mineral exploration and mining industry.

Customers and staff noted that resident and staff geologists are important experts in the local geology and exploration activity of their districts. It is difficult to gain and maintain such knowledge if one does not operate in the field.

Mining recorder staff pointed out that historic industry development patterns and the condition of the survey fabric lead to regional differences in the problems associated with claims staking. Knowledge of differences among mining divisions is currently embedded in the minds of the mining division staff. Any move to centralize the claims registration function would have to deal with such regional differences.

Centralizing regulatory approval functions and decentralizing service

Separate regulatory functions from service functions

Service and regulatory functions are generally incompatible. They should therefore be kept separate from each other through some form of informal or formal solution (ie separated staffing assignment or separated organizational units). The division has separated its regulatory and service roles by locating its regulatory role primarily in the Mining and Land Management Branch and its service role primarily in the OGS.

Separate approval processes from intake processes

Regulatory approval processes generally separate intake or receipting processes from approval processes. In the Mining Recorder Program, this separation is accomplished by having the front counter clerks handle intake and Mining Recorders handle approvals.

Centralize approval processes

As a general rule, approval processes should be centralized to ensure that uniform standards apply across the province. The Mining Recorder Program centralizes some approvals (eg, approval of some assessment work reports) and decentralizes others (eg, claims approvals, approval of diamond drilling and physical work for assessment credit).

Field service zones

The division's field organization currently covers three service zones: provincial, regional and district (or mining division). As a result of discussions with stakeholders and with other competing jurisdictions, the consultants suggest that the division add a local service zone to improve its service delivery.

Local service zone

Local service can dramatically increase the convenience of access for the customers of the division. The division does not currently operate local service zones. British Columbia has an agreement with a network of 60 local private sector agents who provide local front counter operations on behalf of the province to record mining claims, file assessment work etc., amongst other government services. The use of low cost, local counter operations could represent a major opportunity for the division to cut the costs of its field operations while actually improving its service.

Local service zones should be defined by:

- local settlement patterns
- the presence of local offices of the Ontario Government or private sector agencies that could provide low cost front counter operations
- a catchment area allowing a large majority of customers to get to the district office within half an hour of travel time.

District service zone

District or mining division service is the most convenient field service the division currently operates. It is also quite expensive to maintain and operate.

District service zones tend to be defined by the following criteria:

- the local geology and greenstone belts
- the historical pattern of mining exploration and development of mining camps
- a catchment area allowing a large majority of customers to get to the district office within two hours of travel time.

Regional service

Regional service is currently offered by:

- the Mineral Development Program (Kenora and Timmins offices)
- the Northwest Field Services Section of the Resident Geologist Program (Thunder Bay office).

Given the size and travel times between major centres in Northern Ontario, regional service zones do not meet the test of convenience of customer access for customers that do not live close to a regional centre. Services that require field staff to travel to local areas to meet with customers and require knowledge of local conditions can successfully be operated on a regional basis. This is the model used by the Thunder Bay office in providing service to the Beardmore-Geraldton and Schreiber-Hemlo districts.

Regional service zones should be defined by:

- regional centres in major urban areas with a convenient and accessible regional transportation infrastructure
- travel times of less than four hours for the majority of customers in the region.

Provincial service

The Mines and Minerals Information Centre in Toronto is an anomaly in the field operations of the division in that it currently has no regional or district service responsibilities (although the Southern Ontario Mining Lands Office does share the same facility). Its service is provincial in scope. This anomaly arises for two reasons:

- the move of the division's headquarters from Toronto to Sudbury
- the closing of the Southern Ontario regional operation.

As a general principle, most field offices should have a more restricted geographic service zone. Offices with a provincial service zone should normally operate out of divisional headquarters.

Core competencies of field staff

During interviews with field staff, the consultants identified the following core competencies required of field staff. Core competencies are the knowledge and skills required of staff to perform their assigned responsibilities.

The lists given in this section are not intended to be exhaustive, but rather to characterize the kinds of competencies required.

Knowledge of core business

Provide geoscientific and mineral exploration consulting expertise

Field staff need a knowledge of the core business of the program they are operating.

Staff of the Resident Geologist Program require a significant professional training in geoscience and must be able to consult on mineral exploration models and strategies. They must be able to evaluate the mineral potential of a given land area or exploration property.

Administer and support geoscience libraries and databases

Field staff of the Resident Geologist Program must be able to administer and support libraries of geoscience information. These libraries include:

- assessment work reports
- geotechnical publications
- drill core samples
- electronic databases, including ERLIS.

Understand, interpret and apply mining lands policies and procedures

Mining Recorders and their staff must be able to understand, interpret and apply mining lands policies and procedures with respect to:

- the licencing of prospectors
- the filing and maintenance of mining claims
- the filing of assessment work for credit.

Mineral Development Coordinators must be able to consult with customers on the regulatory and policy requirements of the province with respect to advanced exploration, mineral development and mining rehabilitation. Mining Recorders require significant working and detailed knowledge of the Mining Act and its regulations to fulfil their role.

Customer service expertise

All field staff who deal directly with customers must have considerable expertise in providing service to clients. The results of focus groups and the questionnaires indicate that there is a high degree of satisfaction with the current service levels and customer service skills exhibited by field staff.

<i>Provide front-line counter service</i>	Staff of the Mining Recorder Program in particular require skills in running a front counter service for the issuing of prospecting licences and the receipt of mining claim applications and assessment reports for credit.
<i>Handle customer inquiries and complaints</i>	All field staff dealing with customers require expertise in handling customer inquiries and complaints. This includes person to person, telephone and mail communications.

Information technology support expertise

With the increasing automation of field offices, field staff require considerable information technology expertise. This realization, particularly with respect to ERLIS, was one of the key reasons why the model office project was initiated.

<i>Operate field office information systems</i>	Field staff must be able to operate existing and planned information systems designed for field operations. This includes ERLIS and Claims in particular.
<i>Train and support customers</i>	Field staff are required to train and support customers in the operation of systems such as ERLIS and Claims.

Type and frequency of service required

The types of field offices required by the division are also shaped by the type and frequency of service required by customers. The consultants identified three major factors which help shape field office configurations.

Access to fixed information assets

Despite the investment that the division has made in electronic information, the Resident Geologist Program is still reliant on providing access to the following fixed information assets:

- paper assessment files
- drill core libraries
- technical publication libraries
- ERLIS workstations and other microcomputer stations.

Convenience of customer access is a critical and determining feature with respect to these information assets. Customers repeatedly stress that as long as they rely heavily on paper assessment files, the field offices of the division must provide convenient access to these files. Moving these files to regional centres significantly violates the principle of convenience of customer access.

The division has placed access to drill core libraries on a "by appointment only" basis. Although this has reduced customer convenience, the customers did not mind the inconvenience, as long as the libraries remain accessible.

Access to the majority of ERLIS data requires very expensive UNIX workstations operated by the division in four district offices. Unless ERLIS data is made more accessible, its ability to meet the needs of the majority of the division's customers is severely compromised.

Access to geotechnical libraries is a useful but not absolutely vital service of the Resident Program.

Variability in workload

There is considerable variability in workload field offices. This variability has three fundamental dimensions:

- **Geography**
Due to geology, historical development of mining camps and current patterns of exploration activity, there is considerable workload variability among offices.
- **Seasons**
There are seasonal patterns and peaks in mineral exploration and mining claim activity.

- Cyclical nature of the industry

The mineral exploration industry is very cyclical in nature. Its cycles are tied to a number of provincial, national and global factors including commodity prices, the length of the exploration and development sequence and the pattern of discovery.

The operation from Thunder Bay of seasonal satellite offices for Beardmore-Geraldton and Schreiber-Hemlo is an innovative approach to the variability in workload that characterizes field operations, and was substantiated by both clients and staff.

Need for front counter operations

A number of the services of the Mining Recorder Program in particular require front counter operations to issue licences and receive claims and work files. Since front counter operations are governed by the principle of convenience of customer access, the more access and intake points the government can operate cost effectively, the better the service.

Types of field offices

Based on the results of the focus groups, interviews with staff and the consultations with other jurisdictions, and the design principles just developed, the consultants recommend four types of field offices.

Regional office

Regional offices will administer all field services and field offices in their regional service zone. They will also have responsibility for offering services in their own district and local service zones.

District office

District offices will deliver services which require an annual presence in a district service zone. For example, as long as customers require convenient access to paper assessment files on a year round basis, the division will need to operate district offices to provide this access.

Seasonal satellite office

Seasonal satellite offices enable the division to respond to variations in workload due to seasonal and geographic differences. Staff for a seasonal satellite office would work out of the regional office, travelling to a district location on a seasonal basis. Wherever possible, the satellite office would operate out of an existing Ontario Government Building. Minimal space would be required so that field staff could meet with customers and perform routine administrative tasks.

Participants in the Thunder Bay workshop expressed considerable satisfaction with the regional operation in Thunder Bay. The consultants recommend that the division continue to provide services to Beardmore-Geraldton and Schreiber-Hemlo. We also suggest that the division consider moving other existing district offices with variable workloads or relatively light activity levels to a satellite operation.

Local front counter operation

The division should give serious consideration to opening a number of front counter operations in communities throughout the province to provide access to Mining Recorder services in particular:

- selling prospector licences and claim tags
- processing mining claims and receiving assessment work files
- taking orders for maps and publications produced by the division
- providing access to the Claims and, eventually, the ACMap system.

The division should contract with public or private sector agencies to establish these operations. They could also administer front counter operations in their regional and district offices. If possible, the temporary office facilities used by seasonal satellite offices could also offer front counter services as well on either a seasonal or annual basis.

Office location model

The consultants recommend that the actual location of the different types of field offices should be determined by the following factors:

- Customer requirements as expressed in the stakeholder consultations
- Measures of current customer activity
- Constraints of fixed information assets.

Customer requirements expressed in consultations

In stakeholder consultations, the division's customers were very specific about their requirements based on the scope, season and location of their work.

All clients expressed a clear and unequivocal need for readily accessible services in the areas where prospecting, advanced exploration, assessment work and competitive claim staking is currently happening. They expressed the following priorities:

1. immediately accessible and confidential claims filing which is immediately verified and approved and supported by immediately accessible claims abstracts and claims maps.
2. immediately accessible paper assessment files, local libraries and other reference material.
3. access to a geologist with knowledge of the local area (for in office consultations and property visits).

Customers were very emphatic about their need for access to the hard copies of assessment files in the appropriate district office. Several customers said even if their local office had to close, the assessment files should remain available in their district, even if they lost their resident or staff geologists. The demand for hard copy assessment files is based on three factors:

1. ERLIS is not available in all centres
2. Where ERLIS is available, the assessment data on ERLIS is not currently complete or up-to-date
3. The ERLIS electronic user interface cannot effectively simulate the physical manipulation and cross-referencing of hard copy files, maps, overlays and reports, which is an essential element in the process of discovery and analysis.

Some clients were engaged in broad area studies (ie regional, provincial), geoscientific modelling, large property block assessments and remote exploration activities. They required access to assessment files and drill core libraries in the major centres where their offices are located and where there is a convenient infrastructure travel and living. ERLIS data and functionality were viewed as essential to these regional analyses. This type of work was generally of little interest to the local prospectors.

Measures of current customer activity

Mining exploration is beginning to spread to more remote and difficult-to-access areas (eg, the northwest and the Hudson Bay Lowlands, the Musselwhite mine) where MMD's facilities are not currently located. The bulk of future exploration and property development activities are, however, expected to remain in close proximity to current areas of activity. There is a saying in the industry: "Most new mines are discovered within eye sight of the shaft head of existing, producing mines".

Table 5-1 ranks existing office locations by three measures of activity level from 1994 statistics:

1. customer inquiries and visits made to Resident Geologist offices, including property visits by Residents
2. active claims by mining division
3. value of assessment work filed by mining division.

Locations containing both Mining Recorder and Resident Geologist Offices have been combined.

For each location, an average ranking was derived by taking all three rankings (in the case of combined office locations) or the customer visit/inquiry data only (in the case of locations that only have a Resident Geologist office). The mining claim and assessment statistics for the Southern Ontario Mining Division were combined with the Southeast Ontario Resident Geologist District (Tweed).

The rankings indicate that two offices have either very high activity levels, high claims activity and assessment value: Timmins and Kirkland Lake.

Five offices have relatively low activity levels or claims activity and assessment value. These locations are Schreiber-Hemlo, Beardmore-Geraldton, Cobalt, Kenora and Southeastern Ontario (Tweed). Tweed actually has a reasonably high ranking with respect to customer activity (5th out of 14 locations in 1994), but it has the lowest claims activity and assessment value, due to the fact that most mining activity occurs on privately held land.

Recommendations for the location of the different types of field offices are contained in Chapter Six.

Table 5-1. Average ranking of offices by various activity levels

Office	Inquiries and visits	Active claims	Assessment value	Average rank
Toronto	1			1.00
Porcupine/Timmins	2	1	2	1.67
Larder Lake/Kirkland Lake	4	3	1	2.67
Sudbury	3	8	6	5.67
Red Lake	6	7	5	6.00
Patricia/Sioux Lookout	13	4	3	6.67
Thunder Bay	14	2	4	6.67
SW Ontario (London)	7			7.00
Sault Ste Marie	8	5	8	7.00
SE Ontario (Tweed)	5	9	9	7.67
Kenora	12	6	7	8.33
Cobalt	9			9.00
Beardmore-Geraldton	10			10.00
Schreiber-Hemlo	11			11.00

Constraints of fixed information assets

Two fixed information assets of the division constrain its choice of office locations:

- paper assessment files, for which there is very high local demand
- drill core libraries.

As long as the division remains the custodian of its existing drill core libraries, it must provide some form of customer access to these libraries on a regular basis and must maintain the library. New regulations have placed more responsibility on clients and simplified the division's work in the processing of drill core samples for assessment credit.

Constraints to the design

The design of the field organization is governed by several constraints that both focus and limit the available options. These constraints include:

- the division's cost reductions' targets
- the limitations on available capital and facility budgets.
- the need to sustain the economic health and value of the industry
- the need to sustain the economic health of local communities
- the need the sustain Ontario's competitive position in the global mining industry.

Cost reduction targets

The Model Office Project is taking place in the context of expenditure reduction constraints, which appear to override industry trends. The exploration and development industry in Ontario has been constrained since the late 80's by general economic conditions, the emergence of new environmental requirements, and the attraction of investment opportunities in other countries. It is just now beginning to rebound. Focus group participants commented on this on more than one occasion. The glow of working in foreign countries has dimmed in the face of poor infrastructure, lack of a trained workforce. Investment capital is returning to Ontario and to Canada. This has been enhanced by the Voisey Bay find, as well as improved financial conditions for advanced exploration and operations.

Whereas Ontario is retrenching organizationally and financially in support of the mining sector, other provinces are holding the line, at worst, while some are expanding their level of support to the mining industry. The Northwest Territories has just created a Mining Directorate. Newfoundland has just created a Ministry of Mines and Energy. BC is embarking on new and greatly enhanced automation of mining records, as are Quebec, Newfoundland and Manitoba. Is Ontario making the right move? The new level of expenditure should reduce the bureaucracy, but not at the expense of those services which support investors in Ontario's mining industry: prospectors, juniors and majors.

As a result of the cost reduction targets of the division (30 to 60% of operating costs), cost savings and efficiency have become overriding objectives for the model office field organization. The consultants have taken the following approach to designing the model office field operation, given the need to achieve significant cost savings:

- eliminate non-core services
- eliminate service to non-core customers
- where possible, significantly redesign service delivery processes to reduce costs while improving service levels and capacity.

Some service delivery processes, however, (eg, access to paper assessment files) cannot be significantly redesigned within the next year or two without massive investment.

Current infrastructure and limitations on budgets

The current MMD infrastructure is developed and capitalized. Except in instances where alternative office and facility space is available at no extra cost (or can be offset by cutting cost elsewhere) or where the growth in client activity is extreme there are limited options and little need to significantly modify the physical infrastructure. The costs of restructuring and relocating the physical infrastructure is largely prohibitive and would defeat the streamlining and cost reduction requirement of this project.

Historically the cost of physical infrastructure and offices was carried by a central agency of the Ontario government. Given that ministries must move to fully loaded costs in 1997 which include this infrastructure, the opportunity to reduce the number of size of sites will have an impact on budgets.

Impact on mineral exploration & mining industry

The division's customers continually reinforced two major points:

- they have a very high level of satisfaction with the current level of field services offered by the division
- any withdrawal of field services or redesign of service delivery processes could have very damaging impacts on the industry.

For example, many prospectors indicated that if district and division offices were closed, they would be forced out of business since they could not afford to travel to regional centres to get access to assessment files or to file claims. This position was re-inforced in the comments on the questionnaire.

Impact on local communities

The division's field offices and the communities of residency of its staff are closely linked to the economic and social fabric of the exploration and mining dependent communities. Any decision to close or move offices and staff residences not only has a personal impact on families and neighbourhoods, it will impact on community income directly.

Cut head office budgets before field service budgets

At every focus group, the division's customers criticized the division for maintaining too many levels of management at head office and for running head office functions that provide little perceived value to the industry. The consultants recommend that the division phase its budget cuts:

- in the first year, most budget cuts should be made to head office operations
- reserve budget cuts to field operations until the second year.

Sustaining the three tier structure

Phasing the cuts in this way will allow the division time to redesign its field service delivery processes in a way that minimizes any negative impact on the industry.

Much of this section on design criteria and the application of these in Chapter 6 are based on maintaining and nurturing the current dynamics of the mining industry, specifically, sustaining the three tier structure of industry players. Just as both white collar and blue collar jobs have been heavily impacted by automation (or re-engineered information service delivery) in other sectors (banks, insurance companies, manufacturing, couriers) so the increased use of technology in the mining sector may be setting the industry up for a major redesign of the workforce.

In listening to the input from the focus sessions, and reading the responses to the questionnaire, the most vocal segment is clearly that of the traditional prospectors who feel most threatened by change from delivering geoscience information on paper to delivering it electronically.

Will information technology in Ontario and other jurisdictions change the way the exploration business is structured? If what has happened in other industries is any indication, one would think so. It is too early to predict, however, what the structural impact will be. While it is true that most mineral finds have been located by independent prospectors, not all prospectors are operating with traditional methods. A number of independent prospectors and consulting geologists have embraced electronic information technology as a way to increase their competitive advantage in exploration. The majors and juniors have embraced electronic information technology for some time.

Whenever new and innovative solutions are challenged by the status quo, it is important to assure ourselves that any reasons for fall back or extended implementation are truly valid, and not a "knee jerk" reaction to criticism. The following questions are rhetorical in nature, but question the possibility of being too reactive to criticism.

Are we perpetuating the current system, because pioneering initiatives like ERLIS are still somewhat immature? While this report outlines the perspective of the Mines and Minerals Division customers, coupled with the assessment of the consultants, it is always possible we are leaning a little too far backwards.

If the basic structure of the industry were to change to where exploration was made more effective through the use of ERLIS and other databases (like libraries and expert databases of legal precedents), do the recommendations outlined in this report represent a reasonable compromise in a phased implementation?

6.

APPLYING THE DESIGN CRITERIA

In this chapter, the consultants apply the design criteria from the previous chapter to the existing programs and offices described in Chapter 4 to develop a picture of the model field office operation.

Resident geologist program

Applying the design criteria led to a number of opportunities for tightening the focus of the Resident Geologist Program on its core business. There were very few opportunities for significantly redesigning the service delivery processes of the program. Although ERLIS holds out significant long term opportunities to re-engineer the program, the system and its supporting technology is not mature enough to provide significant benefits in the short term.

Tightening the focus on the core business

The customers of the resident program identified a number of opportunities to tighten up the program, given the reality of constrained staff and budget resources.

Cut public education and prospector classes

The prospecting and mining community generally agree that there is insufficient public knowledge about the geological resources, the activities of the industry and its economic contributions. Customers suggested, however, that this educational role is neither core to the division nor a good use of geological staff time. They recommended that public education and school programs be the responsibility of the industry and the Associations.

Prospector course were seen as essential to building a core capability of skills in the prospecting community. Some customers indicated that the Province's educational institutions were better equipped and more appropriately responsible for these functions. Other customers suggested that prospector associations could assume responsibility for prospector courses.

Reduce land use planning commitments

Reviews of major land alienation projects (ie Heritage Canada; Ontario Parks) are essential to protect mineral resources. Mineral potential analysis studies, reports and the assistance and review of land use plans for municipalities, however, are considered outside the core business of the program. In some Districts, geologists may spend up to 40% of their time assisting other government agencies to complete and review the plans for land alienation that is of little consequence to the exploration community or the Province's mineral and geological resources.

Cut handling of lab assay samples

While geological staff will refer to assay reports when consulting to and advising prospectors and explorers, the division should not provide assay services directly to clients. Assay laboratory services are available from the private sector at competitive rates and at a much faster turnaround time.

<i>Reduce service to hobbyists</i>	Public services for rock hounds and hobbyists constitute a major time dedication in some districts. These activities are not considered as core to the Division. Information services could be offered as part of front counter operations, but consultative time should be reserved for serious explorationists.
<i>Seek alternate funding sources for symposia</i>	The annual industry symposia are highly valued by clients but a number of clients recommended that, in the light of constrained government resources, the responsibility and expense of organizing the symposia be transferred to the private sector and industry associations. Government geologists would still be required to present scientific and technical work and release study and survey results at industry sponsored symposia.
<i>Examine feasibility of regionalizing OGS mapping</i>	Several customers raised the potential of regionalizing OGS field mapping, surveys and special projects. OGS mapping personnel would be assigned to regional or district offices. This model is used in Quebec and was apparently used in Ontario many years ago. A retired government geologist indicated that mapping staff would be able to extend the field season by one or two months per year if they were located in the field. Conversely, we received comments outlining concerns that placing OGS staff in the field would reduce their opportunities for professional collaboration. Neither arrangement is perfect.

Model field office operation

Considerable focus group time was spent on discussing the merits of locating the resident program in four or five regional offices. Customers raised strenuous objections to such a model. Their major concern centred on reduced access to paper assessment files.

The regional model does offer some benefits in reducing staff and administrative costs. As long as there is no adequate substitute for paper assessment files, the consultants do not believe that complete regionalization is in the interests of the industry or the division.

The division can, however, derive some immediate benefits from moving towards a regional model.

Create five regional offices to manage field operations

The division should consider creating five regional offices to manage its field operations. Based on the design criteria for regional offices contained in the previous chapters, regional offices should be located in Sudbury, Timmins, Thunder Bay, Kenora and Toronto. Kenora was suggested as a regional centre because of the large travel distances in the existing northwest region.

Participants in the Thunder Bay focus group also suggested locating a regional office in Dryden rather than Kenora, to reduce travel times to possible satellite offices at Sioux Lookout, Red Lake and Kenora. As long as district offices are kept open in Sioux Lookout and Red Lake, the consultants recommend establishing a regional centre in Kenora, given its size, transportation infrastructure, and the existence of a drill core library.

Maintain four existing district offices

Given customer concerns about retaining convenient access to paper assessment files and the volumes of exploration activity, the consultants recommend that the division maintain existing district offices in at least the following four locations: Red Lake, Sioux Lookout, Kirkland Lake and Sault Ste Marie.

If cost constraints absolutely require more office closures, some of these district offices could be converted to satellite operations similar to Schreiber-Hemlo. The Ministry has already experienced, however, a substantial outcry from locales like Kirkland Lake over the prospect of office closures. This is understandable given that Kirkland Lake has almost orders of magnitude more volume of business than either Red Lake or Sioux Lookout. Considerations for keeping these latter offices open relate more to travel distances than to substantiated volume of business. Similarly, Sault Ste Marie could remain in place until the government's investigations into a regional service delivery structure across programs has been completed.

Consider feasibility of converting three existing offices to satellite offices

The Schreiber-Hemlo and Beardmore-Geraldton districts should continue to operate satellite offices. If the resident's offices eliminate non-core services, other districts could potentially be converted to satellite operation. In particular, the division should consider converting the Cobalt, Tweed and London offices to satellite operation. A Cobalt satellite office could be run out of either the Sudbury or Timmins regional office.

Tweed and London could be operated from Toronto. Both currently have reasonably high customer activity levels but some of those activities are derived from non-core activities (land use plan reviews and hobbyists). They also both operate drill core libraries. Any move to operate Tweed and London as satellite offices must take the maintenance and operation of these libraries into account. Any assessment files in Tweed and London could be moved to Toronto.

Leave current ERLIS installations

The current ERLIS installations should be left in Toronto, Sudbury, Timmins and Thunder Bay. If licencing and support costs are prohibitive, the division should consider withdrawing ERLIS from Timmins and Thunder Bay. To quote a number of customers in focus groups in these cities, "Take ERLIS back and fix it."

A detailed analysis of ERLIS and recommendations can be found later in this report.

Maintain access to paper assessment files in regional and district offices

The division should continue to provide convenient daily access to paper assessment files in the regional and district offices identified in this report. Although ERLIS has the potential to support a major redesign of the geoscientific information services of the division, it requires an enhanced delivery system to make it more readily usable and available to the user community. (Please see chapter 7 on ERLIS for additional details.)

Continue to provide access to drill core libraries by appointment

Every focus group had a few explorationists and consulting geologists who affirmed the value of the division's drill core libraries. The existing libraries should be maintained by the closest regional or district office.

Staff regional and district offices to balance customer demand

If the division focuses on its core business, the staffing of regional, district and satellite offices can be reorganized to establish a better balance of staff to respond to the needs of core customers.

Assign one geologist to cover multiple satellite offices

The business volumes show that savings can come from reassigning resident or staff geologists to cover more than one district. Geology staff assignments should be based on rules that specify the ratio of volume of business per geologist (adjusted to variations in field conditions, geology, travel time; etc). Today's level of allocation reflects the current mining camp approach; tomorrow's will require more flexibility. Lower volume offices (ie, district and satellite offices) might operate with a staff geologist for each office plus one administrative staff. Higher volume offices such as Kirkland Lake might require two staff geologists reporting to a resident in the regional office (Timmins).

Examine responsibilities of resident and staff geologists

The consultants were hard pressed at times to find much distinction between the work of resident and staff geologists. In general, the resident geologists tend to have a larger administrative workload, while staff geologists have more time for direct customer contact and field visits. The division may wish to reconsider the job responsibilities of resident and staff geologists. For example, the resident designation could be reserved for regional offices only or for regional and district offices, but not satellite offices.

Facilitate reporting responsibilities

Resident geologists appear to spend a considerable amount of time on administrative reporting responsibilities, providing statistics on office activity levels as well as on exploration activities. The division might alleviate these responsibilities by either reducing the reporting requirements or providing better automated tools to standardize and facilitate reporting.

Mining recorder program

The consultants observed major opportunities to redesign the service delivery processes of the mining recorder program which could result in substantial improvements in service and major reductions in costs. These opportunities arise from two major factors:

- the accessibility of claims information province wide
- innovative approaches to customer service operations, including front counter operations and customer call centres (1-800 numbers).

Core business

The mining recorder program is a well defined regulatory program that remains focussed on its core business and core customers. The consultants did not observe any non-core functions in the mining recorder function (with the possible exception of some front counter operations which will be discussed later in this section).

Model field office operation

In general, the division could improve service and reduce costs by:

- licencing local front counter operations to improve service and cut administrative costs
- centralize or regionalize claims approval, claims inspection and assessment credit approval functions to standardize approvals and cut costs.

Other recommendations in this section provide more detail on the potential improvements to mining recorder operations.

Although the consultants observed major re-engineering opportunities for the mining recorder function, a complete business process redesign of the program is beyond the scope of the current study.

Centralize or regionalize Mining Recorder position

The regulatory approvals function of the Mining Recorder determined are core functions of the division but do not need to be delivered in mining division offices across the province. This issue was discussed at each of the four focus sessions, and while it will be missed in the field, there was general support for centralizing this function. These functions include:

- Registering, reviewing and approving claims and assessment submissions and filing, up-dating maps and Claims system data base.
- Facilitating and ruling on disputes.
- Advising clients on, and interpreting, provisions of the Mining Act and its associated regulations.

- Providing expert assistance in completion of applications forms, or responding to questions regarding the documentation or filing of assessment reports.

With the exception of diamond drilling and physical work, the approval of assessment work reports for credit is already centralized. Claims approvals and dispute resolution could be centralized or regionalized.

Create more local front counter intake/information operations

The consultants suggest that the division has a major opportunity to increase customer access to the function by licencing front counter operations in all towns and cities with significant exploration activity. These counter operations would:

- administer the sale of prospector licences and claim tags
- take orders for and sell publications prepared by the division
- receive and time stamp mining claims and assessment work reports to be forwarded to Sudbury for processing
- provide rudimentary assistance regarding the preparation and submission of claims and assessment work reports.

Consider operating a customer service call centre

Staff in a local front counter operations which perform part time mining recorder work cannot be expected to provide expert assistance in the preparation of documentation or claims applications. The division should consider operating a 1-800 claims and assessment file support number to supplement the front counter operations.

Provide Internet access to claims information

The division should investigate the use of the Internet as a vehicle for distributing claims maps and abstracts. Claims data could be a layer in ERLIS. See Chapter 7 for details on providing Internet access to ERLIS data.

Conduct major re-engineering study of mining recorder processes

The division should conduct a major re-engineering study of mining recorder processes. Focus group customers have strongly recommended that the administrative processes and forms be simplified and streamlined.

Effective front counter operations are essential to control the accuracy and completeness of submissions so as to keep the process fast and inexpensive (faster filing, less re-work and non-value adding corrections work, and a faster turn around time to clients). The need to assist clients in making submissions can be dramatically reduced by introducing simpler forms and self-explanatory procedures guide. In Newfoundland, most claims are faxed or mailed in to the one mining recording office in St. John's. They are considered "accepted" on receipt, despite the fact that there may be some errors or omissions in the submission. These are then worked out by telephone, fax or mail, but the priority of the claim is held unless there is a serious dispute.

As a new generation of claim stakers develop familiarity and comfort with electronic telecommunications, an increasing volume of claims recording and assessment work filing can be done electronically. If third party providers are licenced to operate front counter operations on behalf of the program, they must be prepared to keep confidential the claims information and assessment work reports they receive until they are released as public information.

Mineral development program

The end of a number of incentive programs has called into question the role and workload of the field operations of the Mineral Development Program. The strongest support for the retention of this function came from a few small and mid-sized mining production and mine development clients that find the regulatory regime and bureaucracy very expensive and slow to manage.

The overwhelming majority of clients attending the client focus group meetings and responding to the surveys expressed that they experience little value in this function largely because they do not use it and are unfamiliar with head office or other programs with which they have no contact. Other comments suggest that the division and the Mineral Development Coordinators do not have the jurisdictional authority to go beyond a form of "moral suasion" in influencing the regulators in other Ministries and agencies and Aboriginal Bands to approve permits.

A small telephone survey contacted a number of mineral development clients in Canada and the US. Each placed a high value on the contribution of the function to their individual business interests.

Core business

Abandon one window permitting

The one window permitting process is largely designed to assist the mining industry in navigating the administrative complexities and bureaucracy of other government agencies. Focus group customers questioned the value of operating a one window program for processes which the division does not control. There was general support for the fact that the function assists in informing the client of various procedures which they must follow to get the necessary permissions and permits for other ministries.

Avoid regulatory versus service conflict in mining rehabilitation

To offset the gap resulting from the curtailing of the governments industry incentive programs (constituting 40% - 60% of the coordinator's past activities), there has been discussion about assigning a regulatory, inspection and technical advisory role in mine rehabilitation to coordinators. Combining regulatory and service delivery roles (particularly one as sensitive as facilitating and resolving conflicts between interest groups) has sometimes marginalized the effectiveness of one or other role. This combined role at the individual employee level seems to be workable in the case of the mineral development program.

Focus on remaining core activities to determine viability of field operation

The remaining functions of the coordinators include:

1. Facilitating relationships and resolving disputes between industry representatives and Aboriginal First Nations and other stakeholders
2. Coordinating industry and community and government stakeholders to facilitate advanced exploration and mine development projects.

3. Providing technical advice to mining companies regarding advanced exploration, mine development, operations, closures and rehabilitation
4. Advising international investors on opportunities to invest in the Ontario mineral exploration and mining industry.

There may not be sufficient workload to justify the current staffing levels of regional offices. If there is insufficient workload, the function should be centralized. Of the four remaining functions, the first two benefit from a regional operation. The last two could be performed from head office.

7.

REVIEW OF ELECTRONIC SERVICE DELIVERY

Scope of Review

Currently, the primary electronic information delivery systems in place within MMD are the Claims system used by all Mining Recorders Offices, the ACMaps system for which a pilot project is being developed for the Sudbury office, and ERLIS.

Comments and recommendations about Claims and ACMaps are treated in the sections of this report which deal with the Mining Recorder's functions. This section deals primarily with ERLIS.

Although ERLIS has also become a valuable tool for geoscientists internally within the Ministry, the focus of this review was only on the current and potential role of the system as a means of delivering those electronic services to customers consistent with the scope of the Model Office Project. The assessment reflects the comments and opinions of those who attended the workshops and submitted questionnaires.

The information sources for this review included:

- an examination of the current ERLIS system
- a review of plans to include new data layers already created or currently under construction
- a discussion and review of the 1996/97 proposed budget for ERLIS
- an analysis of the ERLIS sections of the survey
- input from the four workshops held across the province.

To determine the possibility of providing electronic information via the Internet, a brief review of ERLIS was undertaken by an individual who was a member of the original AFRI design team, and who now works for a company providing web site construction software and services, for geographically referenced databases.

ERLIS Background and Current Situation

Planning for ERLIS appears have begun in the early nineties. At this time, planning was mostly conceptual, and focused on the definition of potential data layers. The central axiom of ERLIS was that all data would be geographically referenced. At this level of planning, more attention was paid to the contents of the database rather than who would be the ultimate consumers of this information, and how it could be delivered.

In 1992 / 93, the AFRI (assessment file) database was developed. This project was triggered by the relocation of the move of the MNDM head office from Toronto to Sudbury. The objective was to provide an electronic copy of the Toronto Assessment File Library files, when the paper files were eventually relocated to Sudbury. It was intended to make this database available only in Toronto and Sudbury. The choice of high-end hardware and software reflected the limited distribution objectives for the database.

During the development of AFRI, the potential for using the technical platform and the NTS mapbase as underlying platform for ERLIS was identified. This coincided with new funding opportunities from NODA, Jobs Ontario and other programs, and an intensive program for constructing new ERLIS data layers was begun. Apart from the base AFRI layer (and an earlier MDI layer), new layers have been developed for Drill Holes, Lithochemistry, geological maps, an update of MDI, and OGS publications. Some of these layers are about to be integrated into the ERLIS database, whilst others will not be complete until the end of the 1996/97 fiscal year.

Although the Ministry has taken great strides to manage the rapid development of the ERLIS data layers since the original AFRI project, less attention has been focused on the issue of who the ERLIS consumers are, and how should ERLIS be delivered. And, although electronic filing by submitters of new material was always contemplated, progress towards achieving this has been slow.

The original delivery platform initially intended for Sudbury and Toronto, has been expanded to include limited systems in the Thunder Bay and Timmins Resident Geologists offices. These facilities are relatively expensive compared to information delivered by a PC platform using mass market software.

Thus, at this point, we see that the Ministry will soon be completing an ambitious data warehouse stocked with a rich variety of data products, but needing a clearer understanding about who the consumers are, in what form they would like to have the product, and with definite improvements with regard to the currently limited information delivery system.

Over the four years that it has been under development, ERLIS has remained remarkably close to the original conceptual plan. However, events have occurred that have clouded the overall objectives of ERLIS.

- When the AFRI layer was made available to the public, it was done prematurely, when parts of that layer were substantially incomplete. That, coupled with the identification of many data errors without a rapid process to correct them, create the impression in the potential user community that AFRI was (and still is) unreliable, and can never be used as a replacement for the paper assessment files.
- Considerable effort was made in the design of the AFRI system to make it user friendly, because it was intended that it be general enough to form the basis for ERLIS. It is, however, a relatively complex system, and there is undoubtedly a steep learning curve that most users experience. Many potential users have formed negative impressions because they have only used ERLIS once, and have not risen high enough on the learning curve to achieve basic proficiency.
- The fears about the effects of government downsizing in general applied to MNDM have created the impression in some sectors of the exploration community that the choice for the Ministry is "either offices or ERLIS". All of the approximately \$20 million spent on the development of ERLIS, has been with capital funding that would not otherwise been available to the Ministry, and over 75% of this \$20 million was spent in the geological services industry. In its current state with its relatively expensive, but limited, delivery system ERLIS is costing about \$1 million per year to maintain, which, as 5% of the original development cost, seems reasonable or even lower than what might be expected.

In summary, the Ministry is faced with four major problems with ERLIS:

1. Currently there is no concrete plan to create a customer delivery system for ERLIS, although several ideas are being explored. The current Unix based system in the four offices is limited and expensive, and for those who use it, results in much lower productivity than using paper files.
2. There is a perception that ERLIS (read AFRI) is unreliable and will never be a substitute for paper files
3. There is a perception that ERLIS is only useful to the major exploration companies, and funds are being spent on ERLIS that otherwise could be spent on field office services.
4. The Ministry is in the process of completing a \$20 million database. Unless it abandons it entirely, it will always require a base funding level to maintain the database. If timely maintenance is not done, users will gradually lose confidence in the integrity of the database. The Ministry must find ways to streamline the data updating process.

On the positive side however, there is a small sector of the community who have already found several positive aspects to ERLIS, and another larger sector who have adopted a "wait and see" attitude, and who would welcome the opportunity to try out ERLIS if it were more readily available.

ERLIS Alternatives

We see that the Ministry has decision tree to follow: abandon ERLIS or continue with ERLIS.

Option 1: Abandon ERLIS completely

The Ministry could abandon ERLIS completely perhaps turning over the database layers to non-profit or for-profit organizations who have an interest in maintaining or marketing them.

The Terms of Reference for the Model Office Project do not include assessing this alternative and we have not spent any time investigating the feasibility of this option.

However, it is probable that if ERLIS was turned over to a for-profit organization, the vocal detractors of electronic exploration databases today would likely to be the first to complain that they shouldn't have to pay for what they consider to be public information, or that it will give an unfair advantage to organizations that can afford to pay for electronic information.

Option 2: Continue with ERLIS

If the Ministry does not abandon ERLIS, then it must adopt a few basic measures to improve credibility and reduce ongoing costs regardless of the course it chooses for the delivery of electronic information:

Maintain access to paper assessment files

Acknowledge the overwhelming user sentiment that the AFRI layer of ERLIS is a poor substitute for using paper files, and there is no intention of eliminating paper files as the primary source of assessment information.

Improve maintenance of ERLIS data

Improve the data maintenance processes to ensure that all existing known instances problems in the AFRI and MDI databases are quickly corrected, and that there is an easy to use process for users to report new instances of missing or inaccurate data, and that these problems are corrected quickly (two to three weeks - not two to three years).

Implement electronic filing of assessment work reports

Undertake a business process re-engineering and systems development project to accept electronic filing of new assessment data, at first providing incentives, and within five years making it a mandatory procedure. This process should also cover maintenance of the Drill Hole layer, as most new data for this layer will be derived from the assessment files. Electronic filing should not only lead to lower database maintenance costs, but will eventually lead to order of magnitude improvements in the performance of the delivery system as reports and maps changes from being graphic based to text and vector based.

Delivery System

Today, the delivery of ERLIS information to users is achieved either by selling individual data layers directly to those organizations who have the computer software to integrate the information with their own databases, or via the ERLIS workstations in Sudbury and Toronto Information Centers, and the Resident Geologists offices in Timmins and Thunder Bay. There are currently no plans to expand this service.

Delivery system alternatives

Apart from the costly option of increasing the number of Ministry offices with ERLIS workstations such as in Timmins and Thunder Bay, there are really only two choices for making ERLIS more widely available.

Create PC ERLIS

Develop a PC ERLIS viewing application, and publish datasets on a geographic/data layer basis. As assessment files and the soon-to-be-included publications layers are primarily image files, for all practical purposes, the medium would have to be CD ROM. Alternatively to reduce data volumes, data could be published only on demand and delivered by individually prepared CD ROMs. Although the selection of data could be automated, this would require a higher Ministry effort and cost than publishing all datasets with an annual update.

Or deliver ERLIS over the Internet

Rather than develop a PC based viewing system, deliver ERLIS information via a public network, such as the Internet. This would provide the widest accessibility, but there would also be problems to surmount because of the size of the image datasets.

Had the delivery mechanism been decided in the early stages of ERLIS development, it is almost certain that the Ministry would have opted to build a PC AFRI, possibly even establishing the ERLIS data warehouse on a PC also. However, that did not happen, and the Internet has developed into a viable, even preferable, alternative.

Over 50% of those responding to the questionnaire about ERLIS indicated that they would be interested in seeing an access developed for ERLIS via the Internet. Is this technically possible?

Feasibility of distributing ERLIS via the Internet

Current data communications infrastructure constrains browsing

Today, the fastest communication access to the Internet available over standard telephone lines is 28.8 baud. An Internet user with a home PC, equipped with a 28.8 modem costing about \$200, is able to receive information at the rate of approximately 3,000 bytes per second. Internet access costs between \$1 and \$2.50 per hour per month depending upon location and type of service. Much of ERLIS is image based documents (assessment files, publications). The average assessment file, consisting of a 20 page report and 3 maps requires about 3 megabytes of storage. Each report page is approximately 80,000 bytes. Whilst each page would take approximately 20 seconds to download, an unacceptably slow rate for interactive browsing, an entire average sized assessment file could be downloaded in about 15 minutes, for off-line viewing.

There are also alternative communication service already available which break the 28.8 barrier of the public voice network. Bell offers ISDN service in Sudbury for \$50 plus a small usage charge per month, doubling, and potentially quadrupling the 28.8 kb limit. It will take some time before these types of service are generally available in northern communities as they require sufficient demand to justify providing them, so the Ministry would be prudent not to assume that services faster than those now offered over the public telephone network would be available to the potential user base for ERLIS, and they should build supplemental distribution methods for ERLIS data such as paper, fax, custom made CD-ROM's and e-mail.

ERLIS could be delivered on the WEB using standard browsers

Apart from the communication speed limitation, the technology exists today to put ERLIS on the World Wide Web. Most of the software required is already available off the shelf. Some custom development will be required to provide the common geographic front end to ERLIS. There are several GIS based applications already on the Web.

Prior & Prior asked Mr. D. Desjardins of Appian Interactive Corporation to examine the potential for providing Internet access to ERLIS. Appian is a company which specializes in Web and browser software for GIS based applications, and which developed the Internet access for the Ontario Investment Service system for MEDT. Mr. Desjardins was also part of the Monenco design team for the AFRI project.

His review concluded that ERLIS Internet access could be provided, using the existing ERLIS database (not a derived copy), by using industry standard browsers, such as those provided by Netscape or Microsoft, supplemented with plug-in viewers of both off-the-shelf and custom developed software. He suggests that the project be a multi-stage development, with considerable time spent in the planning phase. He estimates the total software development to create the site and browser add-ons to be in the order of 25 man months.

We estimate that the total (hardware and software) one-time cost of setting up an ERLIS web-site to be in the order of \$700,000 - \$900,000 (including the replacement of the image storage jukebox technology in Sudbury with hard disk), but some offsetting savings would be possible once the current Unix based ERLIS distribution system in Toronto, Sudbury, Timmins, and Thunder Bay were withdrawn and replaced with standard PC's connected to the Internet.

There will also be some additional ongoing operating costs to support an Internet ERLIS site, such as additional telecommunication lines and technical support

Pros and cons of Internet delivery

Advantages of Providing ERLIS Access over the Internet

Whilst the introduction of PC technology 15 years ago revolutionized information technology in business, the Internet is now driving another rapid evolution of information technology usage by individuals. Although there is much hype surrounding the Internet, one can reasonably expect that over the next 10 years, many more than the 30% of households that now have a PC (many gathering dust in the basement), will become Internet subscribers as the entry costs drop, and more commercial services become available.

Although there is now some reluctance in some sectors of the exploration community to use electronic exploration information, we believe that over the next 10 years, this will disappear as the use of Internet type services for everyday household usage popularizes information technology. By developing an Internet access to ERLIS, the Ministry will ride this popularization wave. By putting ERLIS into a popular form, the Ministry will overcome the "steep learning curve" problem that plagues the current ERLIS delivery system.

Another obvious problem with the current distribution method for ERLIS is that users must come to the system, rather than the system coming to them. If a user lives nearby, this could be just an inconvenience. If they live elsewhere, it may be an impossibility. Although the Ministry has established ERLIS workstations in offices with the highest volumes, the responses to the questionnaire contain several complaints about ERLIS availability and the limitation of normal office hours. By delivering ERLIS via the Internet, the potential user base will be increased, and the costs of serving this larger user base will be borne by the users themselves, rather than the Ministry.

Limitations of Internet access

As noted above, the characteristics of many ERLIS datasets and the economics of communication technology may prevent some potential users from accessing ERLIS information on an true interactive browsing basis. In the planning for making ERLIS available over the Internet, this limitation can be overcome by designing auxiliary publication methods.

Even with the large 19 inch screens on the ERLIS workstations, many users have complained about the difficulties of reading maps on a screen. Report pages are not so much of a problem, as they are usually readable without scrolling on a 19 inch screen. Most installed PC's through which Internet access would be obtained, now have 14 inch screens. New PC's are mostly being installed with 15 inch screens. 17 inch screens now cost an additional \$650 - \$800 and it is likely that it will be another 3 years before they become the PC standard.

ERLIS users will find it difficult to read a full report page without scrolling, and reading maps will be even more challenging with a smaller screen. However, most users will be able to live with this shortcoming provided hardcopy of maps can be obtained when needed.

In building a WWW ERLIS site, it may not be possible (nor even desirable) to create the same look and feel as the existing ERLIS user interface. About 20-30% of the GIS functionality (such as continuous panning) may be lost. The Ministry should not attempt to replicate the current user interface, but concentrate on developing an interface that has the look and feel of other popular Internet applications

Summary of Delivery Systems Alternatives

Three or four years ago, the development of PC based ERLIS system would have been a logical path for broadening the delivery system of electronic exploration information.

The Ministry may have made a wise choice in deciding not to do so. The popularization of the Internet now places it the most logical choice for information delivery, especially as there are no privacy or confidentiality restrictions on the type of information the Ministry wishes to distribute.

We recommend that the Ministry skip the PC generation for ERLIS distribution, and concentrate on building an Internet information delivery system for the ERLIS data warehouse, and withdraw the existing ERLIS workstations in the four sites that they are currently located.

At some point the Ministry will have to choose whether it wants to make Internet access available in its offices, or whether it will only be available via users own equipment and services. When an Internet access is fully installed, the Ministry may want to consider making PC's with Internet access available in Ministry offices. As there would be no need to provide training and support for these sites, they could be installed in other government offices, besides MMD offices. Alternatively, the Ministry may wish to make owning a standard PC connected to an Internet provider the entry point for clients wishing to access the ERLIS database, and not make any service available from within its offices.

ERLIS Recommendations

Lay to rest fears that ERLIS will replace paper

It is imperative that the Ministry make it clear to the industry that its intention is not use ERLIS as a replacement for paper records, especially the assessment files., but that ERLIS is a supplement to existing information sources. Although Ministry offices may close for other reasons, the industry wants assurance that the paper records will be amalgamated into the new office that serves the area.

Re-establish the credibility of the data integrity of ERLIS

It is important that the Ministry re-establish the credibility of the data integrity of ERLIS, especially the assessment files. This can be done by:

- Completing the final original AFRI corrections, soon to be delivered by the current AFRI 2 project
- Creating a program to encourage users to report all suspected data problems, following up on them quickly by investigating them and getting back the person who reported them, and correcting them in the ERLIS database in a reasonable timeframe.
- When new layers are introduced, such Drill Holes and Lithochem, creating publicity to encourage the reporting of data inconsistencies, and ensure there is a timely follow-up and correction cycle. The Ministry cannot afford to let the data integrity of new layers be tarnished by innuendo and inaction.

Begin an Electronic Filing project

It was anticipated in the original AFRI project, that the Ministry would quickly move to have assessment files submitters index (code) the files that they submitted. This decision was to have been quickly followed up with a process to allow information to be submitted in digital format.

The changes to the ERLIS system to support electronic filing are not technically challenging, but it will require a great deal of interaction between the exploration industry and the Ministry to establish first standards, and then process. We recommend that the Ministry begin this interaction as soon as possible as these type of standards tend to take considerable time to reach consensus.

Mount a major, multi-phase project to create an ERLIS Internet access

We recommend that the Ministry concentrate its efforts to distribute ERLIS information via the Internet supplemented with other media, and phase out the existing ERLIS viewing technology now implemented in four sites.

We estimate that such an undertaking would cost between \$700,00 and \$900,000, and take about three years to complete. We suggest that the Ministry devote considerable effort to planning this information distribution system, and not fall into the trap of putting something up quickly simply to create "presence".

We anticipate that the planning phase would take:

- almost a year (particularly to develop a consensus on standards among stakeholders)
- another year to develop a first phase with limited functions, such as querying the index portions of the database with some supplemental channels for delivering large volume data by other media
- another year to develop a full access system.

Because Internet technology is relatively new, and the tools are still evolving, we recommend that the Ministry seek out organizations that have already implemented similar Web sites to advise and assist it during all phases of the project.

8.

RECOMMENDATIONS

Chapters 6 on applying the design criteria, and chapter 7 on electronic service delivery both contain a range of recommendations regarding the “model office”. This chapter highlights those which will bear significantly on the implementation strategy.

Major recommendations

The following are the major recommendations of the Model Office Project.

Mining recorder program

1. Centralize the mining recorder function in Sudbury.
2. Plan to establish front counter intake operations in regional, district and local offices progressively.
3. Pursue the use of the Internet for viewing claim maps and abstracts.
4. Initiate a re-engineering project for the mining recorder program immediately
5. Include in the re-engineering project a sub-component on map staking.

Resident geologist program

1. Establish regional offices in Sudbury, Toronto, Timmins, Kenora and Thunder Bay.
2. Maintain district offices in Kirkland Lake, Sault Ste Marie, Red Lake and Sioux Lookout. Should these offices be eliminated, it would result in significant objections, and in the cases of the northwest offices, some hardship due to the long distances.
3. Assign geoscientific staff to regional and district offices based on activity levels.
4. Convert Cobalt, Tweed and London to satellite offices.
5. Retain Schrieber-Hemlo and Beardmore-Geraldton as satellite offices.
6. Maintain the current arrangements for drill core libraries.
7. Maintain access to the paper assessment files in the regional and district offices.
8. Cut public education and prospectors classes, handling of lab assay samples, and land use planning support for municipalities, but not input to land alienation decisions.

Number of staff per office could not be estimated within the scope of this project.

Mineral development program

1. Abandon the one window program.
2. Retain regionalized operations if workloads warrant it.

ERLIS and electronic service delivery

1. Lay to rest any fears that ERLIS will replace paper by maintaining access to the paper assessment files.
2. Re-establish the credibility of the data integrity of ERLIS by implementing an effective data maintenance process.
3. Begin a project for electronic filing of assessment work reports.
4. Mount a major, multi-phase project to create Internet access to ERLIS data, including claims maps and abstracts
5. Develop or acquire the skills within the Data Services Section to maintain the ERLIS data warehouse.

Map staking

1. Pursue a detailed investigation of map staking and its implications in concert with the mining recorder re-engineering project.

Implementation schedule and estimates

It is extremely important that the results of this project be implemented as soon as possible, not only to achieve the necessary expenditure reductions, but to reduce the uncertainty and stress associated with the changes. The implementation timeline outlined in this chapter assumes that all organizational changes can be implemented for fiscal 1997. Technology implementations will take longer with three years being the outside target for all related changes to the model office organization.

A very aggressive project management approach will be necessary on the part of the Ministry to achieve these targets. Outside resourcing will be required in a number of areas, primarily related to technology implementation.

While the Model Office Project was not charged with developing cost and benefit scenarios for the implementation of the recommendations, we have attempted to itemize costs where outcomes are well understood. Chapter 8 on ERLIS provides a range of costs from \$700 - 900,000 over a 3 year period. While the lower end of this estimate is conservative and does not include the ministries costs to run RFPs and do internal project management, the upper limit is totally achievable.

Total estimated external costs for the implementation of the proposed changes, including ERLIS, would be \$900,000 - \$1,100,000 over a period of 3 years. Internal costs would be in the order of 8 to 10 man years excluding specific estimates for implementing local intake operations in MNDM or other offices.

Table 8-1 summarizes a two and a half year implementation schedule for the model office project.

Table 8-1 Implementation schedule

Activity	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Comments
Mining recorder											
Re-engineer mining recorder function											4 months elapsed time at \$30-35,000, 4 staff person months
Study map staking											6 elapsed months, \$15,000 external, 6 staff person months
Write map staking regulations											6 months elapsed time, 6 staff person months
Initiate front counter intake operations											9 months elapsed, 6 - 12 internal person months
Implement front counter intake operations											Begin in April 1998
Implement additional intake operations											If necessary
Centralize mining recorder function											6 months elapsed time, 12 internal staff months
Put ACCMAPS on the Internet											6 elapsed months, \$50,000 to \$100,000 external costs
Continue ACCMAPS conversion											Ministry estimate : \$2.3 Mn, 6-12 internal staff months
Resident geologist											
Convert 3 RG districts to satellites											6 to 9 months, 6 internal staff months
Create regional offices											6 to 9 months, 6 internal staff months
Implement new staffing arrangements											6 to 9 months
Mineral development											
Assess workloads											6 to 9 months, 2 internal staff months
Make required changes											
ERLIS Internet access											
Develop plan with stakeholders											
Develop limited function Internet access											\$700,000 to \$900,000 external costs for Internet access.
Create full Internet access system											

Phased implementation of mining recorder redesign

From a timing perspective, it would be desirable to centralize the mining recorder function for April 1997. This could only be accomplished if there was a phased implementation of a redesigned program.

First year implementation

Year 1 activities would include:

1. Initiate a business and process re-engineering project to rethink and redesign the mining recorder function
2. Pending the outcome of the re-engineering project, consider that the resident geologists offices would provide a senior level mining recorder function such as a senior recording clerk (ideally cross trained administrative resources) with the ability to provide guidance and support in claims and assessment report filing. Mining recorder staff in the resident geologist office would report to the Resident Geologist for day to day operations, and to Sudbury for program direction.
3. Provide the resident geologist offices with access to the Claims system on a local basis initially, and on a province wide basis as soon as possible.
4. Provide copies of claims assessment maps (hard copy) routinely and on demand from Sudbury.
5. Initiate the establishment of front counter operations for mining recorder functions in local offices, taking into consideration the government's initiative to migrate to key regional facilities in the province. Northern Development offices would present the most obvious opportunities; local offices would receipt claims and documentation and but not update the Claims system.
6. Initiate a project to determine requirements for electronic filing of assessment work reports consistent with those documented in the ERLIS chapter
7. Continue with the digital conversion of mining claim maps.

Subsequent changes

In subsequent years, the division should:

1. Provide Internet access to either image based or digital mining claim maps using a GIS based browser for the final implementation (Genasys has endorsed such a browser).
2. If telecommunications services are adequate, provide access to the Claims database from local offices for inquiry only; if not, redevelop claims processing to operate on the Internet for inquiry purposes only

This approach is consistent with those underway for BC and Manitoba. Quebec intends further automation of this function, but has not yet put forward a design document.

Front counter and library operations

The division has the opportunity to develop a unified front counter and technical library operation which delivers services for both the Resident Geologist and Mining Recorder Programs. Each regional and district office would operate a front counter service. In addition, the division could licence front counter operations in towns and cities which do not have permanent divisional field offices but do have exploration activity. These operations could be placed in other government offices or in private sector offices. Table 8-2 lists the front counter functions of the division and the offices which could deliver them.

Table 8-2. Front counter and library operations

Function	Regional office	District office	Local office
Selling prospector licences,	✓	✓	✓
Selling claim tags,	✓	✓	✓
Filing mining claims	✓	✓	✓
Providing information on claims policies and procedures	✓	✓	✓
Receiving assessment work reports	✓	✓	✓
Providing information on assessment work reports policies and procedures	✓	✓	✓
Ordering and selling publications.	✓	✓	✓
Providing access to the Claims system	✓	✓	✓
Providing access to claims maps and/or the Claims system	✓	✓	✓
Providing library access to paper assessment files	✓	✓	
Providing library access to maps geoscience publications and OGS surveys and report	✓	✓	
Providing access to ERLIS workstations	✓		

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APPENDIX A: MAP STAKING

Map staking uses the boundaries of mining claims on paper or digital maps as the legal description of a mining claim rather than physical stakes in the ground.

Map staking was not a part of the original terms of reference of the model office project. The subject was raised in the Sudbury focus group by a representative of Inco. It was also mentioned by mining lands staff in discussing potential changes to the mining recorder function. Finally, it was mentioned by other provincial jurisdictions.

The topic is extremely controversial. As technological changes and fiscal constraints converge on the mining industry (ERLIS, centralized recording of claims, map staking, other expenditure reduction), the dynamics of the industry will also change. Preliminary evidence suggests that exploration will rely more and more on technology (airborne geophysics, digital mapping, Internet). Map staking appears to be the major hot button mobilizing resistance to these changes.

The consultants have recorded in this appendix the observations made by stakeholders about map staking. We make only one specific recommendation about map staking:

- study map staking within the context of re-engineering the mining recorder program.

Perspective of the prospectors

Prospectors in focus sessions in Thunder Bay and Timmins were extremely agitated on the subject of map staking. While most were adamant about their objections to map staking, a few voiced their belief that map staking was an inevitable innovation privately to the consultants.

The position of the prospectors has already been voiced in other provinces. Notwithstanding, the prevailing feeling in jurisdictions where map staking has been employed, the objections die down quite quickly.

In the March 11, 1996 edition of the *Northern Miner*, Mike Leahy says "Map staking has a history of stifling competition". The position of the prospecting associations is based on the following concerns:

- Map staking allows the major players to stake large tracts of land, alienating it from the independent prospector
- Map staking will deprive the prospectors of revenue from ground staking and blazing
- Shouldering in on large stakes may be more difficult
- The current regulations on assessment credit favour the large operators
- Map staking of large tracts could be used to manipulate commodity pricing on global markets
- Map staking could upset the current dynamics of the industry, reducing the role of the prospectors, and potentially eliminating the need for juniors and majors to buy options.

Perspective of the majors, government & other jurisdictions

Perspective of Inco and other majors

Map staking is of interest to the majors because it will reduce the initial costs of exploration. Inco made representations to the Ontario legislative committee on Bill 26 in December, 1995 on the benefits of map staking to the industry. Map staking would permit funds in the order of \$3.4 million annually to be directed to productive work

Benefits to government

Mining Lands staff indicated that map staking would reduce administrative costs and would result in fewer claim disputes

Map staking in other jurisdictions

Discussions on map staking occurred with Newfoundland, Nova Scotia, Quebec, Manitoba, Northwest Territories and British Columbia. Clearly all jurisdictions see map staking as inevitable. Their views vary with the stage of their implementation or investigations. The following key points emerged from our interviews.

Quebec

Map staking will require special regulations to protect the prospecting sector

Newfoundland

Map staking is no problem, but incentive funding will continue to be made available to licenced prospectors as well as 10 "free" claims per year per licenced prospector. Map staking is also done on mylars in Newfoundland, and is updated the same day.

Manitoba

Map staking will continue to expand into northern Manitoba using the 1:50,000 NTS mapping. The size of their claims (one square mile) is thought to be quite workable on a 1:50,000 map base.

British Columbia

Map staking is consistent with the overall direction of information services for British Columbia

Need for studies

Both Quebec and British Columbia are continuing with detailed studies to assess the implementation requirements of map staking.

Technical considerations

Claims maps can be done on hard copy initially

Map staking can be implemented using both hard copy and digital claim mapping. Newfoundland updates mylars in the St. John's office daily with one draftsman (except during rushes), and provides updated maps by fax to any location or temporary office. It is probably quicker to implement map staking on hard copy than digitally, at least initially. Manitoba also uses fax transmissions of updated claim maps to offices and individuals.

Disputes are negligible

Where map staking has been implemented, jurisdictions such as Manitoba and Newfoundland find that the number of disputes is negligible (Newfoundland had none). Newfoundland operates a centralized mining recorder function out of St. John's, while Manitoba has essentially two offices, one in Winnipeg and one in La Pas. Processing claim applications centrally and map staking have been very complementary.

The system must avoid tying up large tracts

During the Voisey Bay staking rush in 1995, many claims were map staked in a single day (18,000+ by one firm). Thousands more were staked in groups of 10 in the name of any Newfoundland citizen, prospector or company. The fee for staking is a \$50 deposit against the first year's assessment work, plus a \$5 staking fee. Newfoundland's chief mining recorder is expecting that large amounts of claims will be released this year since assessment work credits have only been performed on a small number of the claims staked in 1995. This is consistent with the views of Roscoe Postle, who feel that tying up large tracts of land is unlikely. Keeping this process in balance in Ontario may require changes to the assessment credit regulations.

Claims identification standards and procedures must be defined

From a digital mapping perspective, Ontario has OBM maps available south of the 51st parallel. There are mixed opinions on whether the NTS 1:50,000 would be adequate for map staking of claims the size of the Ontario claim. If GPS is employed, it is not considered to be a problem. If visual locating is employed, i.e., using visible land marks such as lakes and streams to locate claims, this obviously becomes more problematic the smaller the scale. Manitoba is confident that the map standard is adequate. There have been suggestions that boundary staking be employed in conjunction with map staking as physical evidence of the boundary of the claim. This would facilitate locating the claim in the field, for evaluation, beginning exploration, etc.

*Adjustments for the
prospector tier must be
included*

The most sensitive issues relate to sustaining the prospectors' role in the industry. Quebec was very much aware of the care needed in framing regulations to address this concern. Newfoundland provides 10 free claims per year to licensed prospectors. This is a reasonable approach given that their prospecting community numbers 50 and that they are trying to nurture this segment of the industry, through these and other incentive programs. Others suggested that the map staking fee reflect to a reasonable degree the cost of ground staking. In the first 3 to 5 years, these revenues should be returned to the prospecting community through a special grant program.

*Study map staking when re-
engineering mining recorder
program*

Map staking should be included in the terms of reference for a re-engineering of the mining recorder function with special emphasis on the regulatory and technical considerations.

APPENDIX B:

CONSULTATION RESOURCES

This appendix lists the documents and stakeholders consulted during the model office project. It also includes a copy of the questions asked of field office staff.

Documentation reviewed

The following documentation was reviewed during Model Office Project:

- Land and Property Data Management Expenditure Reduction Review (Draft Nov. 1995)
- Timmins Mining Recorder Audit (1994)
- Physical Security Report, Mining Recorder Offices (1988)
- The Mining and Land Management Branch (a briefing paper?)
- The Earth Resources and Land Information System (Gammon/Merlino paper)
- The Mining Sequence (March 1995)
- Ontario's One Window Approach to Mineral Development (assorted publications/ memoranda)
- Various briefing notes (OGS & uncommitted salary dollars, OGS and winter assistance program, the Resident Geologist Program (2), Ontario Geological Survey (2), Geoanalysis - The targeting of Mineral Deposits through Exploration Models & Methods, Computer Digital Technology - OGS, Opportunities to be Pursued - OGS)
- Typical Services provided by the Mines & Minerals Division
- Various monthly reports from Resident Geologists offices (Kirkland Lake, Timmins, etc.)
- Mining Act & Regulations
- An 8 chapter document addressing Geo Enterprises, OMERC, the importance of mining to Ontario, Business planning, new services for the OGS.
- Information Resource Management Plan (IRM)
- OGS publications

Letters received and reviewed

The following letters were received directly by Prior & Prior or passed on by the Ministry:

- Trinity Explorations re Kirkland Lake Office
- James MacLachlan on the Tweed Office
- Sue Gamble to the Editor
- Media North on Kirkland Lake office (2), on Rio Algom, Interview with Sue Gamble, on the Adams Mine Site, Charlie Angus, Editor Highgrader Magazine (Cobalt)
- George Lucuik, Sault Ste Marie Prospectors Association
- Barry Cooper, Cameo
- David Christianson, Northwestern Ontario Prospectors Association
- Bruce Jeffery, Ontario Prospectors Association
- Stewart Carmichael
- Jeanette Lourim
- Willima Kerr re Timmins Offices
- Douglas Robinson on Kirkland Lake office
- Neil Provins, Porcupine Prospectors and Developers Association
- Michael Leahy, Northern Prospectors Association
- Gerhard Meyer on amalgamation of Timmins & Kirkland Lake
- Kevin Montgomery & Associations.

Workshop participants

Sudbury Workshop on Field Offices Products & Services

The following staff were in attendance on December 19, 1995, for a workshop on the products and services delivered by field offices:

- John Wood
- John Malczak
- Marc Couse
- Roy Denomme
- Christine Kazyski
- Charles Carter
- Rob Campbell
- Franco Merlino
- Andy Fyon
- Hial Newsome
- Ron Gashinski
- Cam Baker
- Phil Thurston
- Randy Schienbein
- Bob Davie
- Jim Storozuk
- Dave Laderoute
- Dave Constable
- Bruce Gates

Client Focus Group - Thunder Bay (January 31, 1996)

The following customers attended the Thunder Bay focus group.

<i>Name</i>	<i>Organization</i>	<i>Tel/ Fax</i>
1. Michael Shuman	Prospector	807-229-0455
2. Brian Fowler	Prospector	807-229-1474 (T) 2619 (F)
3. Allan Best	Prospector	807-584-2903
4. Reg Felix	Noranda	807-623-4339 (T) 0452 (F)
5. Barbara D'Silva	Geologist	807-345-3860
6. Mel Stewart	Prospector	807-939-1242
7. Garry Clark	Consultant	807-625-9291 (T) 9293 (F)
8. Larry Mealey	Prospector, Contractor	807-935-2747 (T) 2988 (F)
9. David Christianson	Prospector, Chairman NWOPA	807-767-4670
10. Ken Fenwick	Geological Consultant	807-344-6568
11. Michael Leahy	Bayshore Geology Inc.	807-577-3833
12. Colin Seeley	Placer Dome Can. Ltd. Musselwhite Project	807-622-8911 (T) 5508 (F)
13. Don Leshman	Private Syndicates	807-767-8161
14. S. Lukinuk	Lawyer (mining commission hearings)/ Mine owner (T. Bay Amethyst Mine)/ Amethyst Miners Association of Ontario (inactive)/ Prospector/ Sit on MN Resources LOC overall planning committee	807-622-6413

Client Focus Group - Timmins (February 14, 1996)

The following customers attended the Timmins focus group.

<i>Name</i>	<i>Organization</i>	<i>Tel/ Fax</i>
1. Kevin Filo	Independent Prospector/ Geologist	7050268-9045
2. David Jones	Self	705-235-2474 (T) 2213 (F)
3. Howard Lovell	Self	705-642-3596
4. Paul David	Outokumpu Mines Ltd.	705-264-5024
5. Lionel Martin	Noranda Mining & Exploration	819-762-0813
6. Kevin Montgomery	Consulting Geologist	705-268-3204
7. Sue Gamble	DGG Inc. & Snowshoe Art & Tech	705-567-4381
8. Neil Pryor	Independent Prospector	705-235-3974
9. Rick Owen	New to Prospectins	705-568-8277
10. Mike Leahy	NPA	705-567-4696 (T) 4693 (F)
11. Rainer Skeries	Moneta Porcupine ... Consulting Geologist	705-264-2296 (T) 267-7490 (F)
12. Denis Maron	Prospector	705-268-3633
13. William Flinsky	NPA	705-235-2208
14. Peter Wood	Homestake Canada Inc	705-268-5545 (T) 267-7648 (F)
15. Patti Nakaitajoe	Self employed	705-267-1204
16. Ray Kohlsmith	Falconbridge Limited	705-267-1188 (T) 264-6080 (F)
17. Stephen Conga	PPDA (Hemlo Gold)	705-268-9600
18. Dave Gamble	Geologist DGG Inc	705-567-4381

Client Focus Group - Toronto (February 15, 1996)

The following customers attended the Toronto focus group.

<i>Name</i>	<i>Organization</i>	<i>Tel/ Fax</i>
1. Georges LaFontaine	Allegheny Mine Corporation	416-322-3477
2. John Bowlby	Neotectronics Association (North York)	416-449-2174
3. Bev Foss	Gartner Lee	905- 477-8400 ext 258
4. Peter McBride	Ontario Mining Association	416-923-9288
5. Ed Freeman	Consultant	416-923-9288
6. Allan Willy	Geologist/ Prospector	416-967-4753
7. Karin McInnis	Pangea Goldfields Inc.	416-350-3780
8. Pamela Chiles	WMC International Limited	613-727-3937
9. Neil Gow	Consultant	416-947-0907
10. Bruce	Prospector etc.	416-483-1973
11. Jeanette Lourim	Prospector/ consulting geologist	416-925-1869
12. Chris Marmont	BHD	416-368-3884

Client Focus Group - Sudbury

The list of customers attending the Sudbury focus group was not available at the time of drafting this report. Some 6 individuals representing the major mining companies and the Sudbury Prospector's Association attended the workshop.

Field office questionnaire

The following questionnaire was sent to each field office of the division.

Name of contact/compiler:

Position/title:

Contact phone #:

Contact fax #:

Questions for and statistics from each District/Field Office - Complete 1 per District

(MMD011)

- 1) **Office(s) Location(s) & District:**
- 2) **Service territory:**
- 3) **List the major types of private sector exploration and mining activities, commodities and reserves in your District:**

- 4) **List the major mineral exploration and development trends in District:**

- 5) **List the major issues, problems and constraints facing exploration and development in District:**

- 6) **Specify the size of MMD's active client/user base in District (#of companies/user organizations):**
 - Majors:
 - Juniors:
 - Prospectors:
 - Consulting companies (other than above):
 - Municipal government(s):
 - Other government(s) (specify):
 - Academic institutions:
 - First Nations (aboriginal organizations):
 - Other type(s) - (specify others):

- 7) **MMD programs, services unique to your District:**
 - List, under the following program areas, specifically unique or different products/services offered in District (i.e., other than the standard and core products/services offered by MMD):

Resident Geologist Program:

•

•

•

•

Mining Recorder Program:

•

•

•

•

Mineral Development Program:

•

•

•

•

8) **Electronic data bases on-line:**

- # of ERLIS work stations: Location: # in working condition:
- Other (specify type & #): Location: # in working condition:

9) **Physical and library resources:**

- Periodical/serial library: Proximity to office ? Staffed ? Yes or No ?
- Core library: Proximity to office ? Staffed ? Yes or No ?
- Office facilities: Leased/rented ? Co-located ? If so, with
Owned by MMND ? what organization(s) ?

10) **District program staffing (current fiscal year):**

Category	Specify functions budgeted To District per category:	# of staff per function (annual FTE's):
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Resident Geologist(s):

Mining Recorder(s):

Mineral Development:

Management (other than above):

Other technical/professional:

Administrative/support:

11) **Performance and activity measures:**

Indicators:	1993	1994	1995
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- \$ value of Industry investment:
- \$ value of MMD investment:
- \$ value of assessment work:
- # of claims:
 - recorded:
 - cancelled:
 - active:

Continues ...

Performance and activity measures:

Indicators:	1993	1994	1995
• ERLIS terminal use (# log-on's visits):			
• # active exploration projects:			
• # work permits received:			

12) Program specific activity:

# Inquires & Consultations:	Resident Geologist '93 - '94 - '95	Mining Recorder '93 - '94 - '95	Mineral Development '93 - '94 - '95
• In-person visits:			
• Phone-calls & faxes:			
• Mail:			
• Property visits:			
• Other indicators in use by District:			

13) Revenues(revenue credits per District):

Revenue Source(s)	1993	1994	1995
• Geo-science publications; serials; etc:			
• Print-outs and data base hard copies:			
• Sale of on-line access time (i.e. ERLIS):			
• Claim tags:			
• Other(s) - (please specify):			

Narrative:

- 14) List the 3 most frequently expressed complaints or problems by clients regarding the use MMD services/products.
- 15) List the 3 most frequently expressed compliments expressed by clients about MMD services/products.
- 16) List the 3 most significant constraints that hinder your District from providing the most effective and/or efficient services and products.
- 17) List the 3 most important service delivery/product offering strengths that enable you to provide outstanding products and or services to clients/users in your District.

Please hand to consultants or forward to:

**Prior & Prior Associates
15 Donino Avenue
Toronto, Ontario
M4N 2W4**

**Phone: 416-481-8141
Fax: 416-481-9403**

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